



# TPD-10

## COMPACT DISC Digital Audio Player



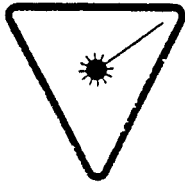
# SERVICE MANUAL

## LASER SAFETY

This unit employs a laser. Only a qualified service person should remove the cover or attempt to service this device, due to possible eye injury.

“CAUTION—USE OF CONTROLS OR ADJUSTMENTS OR PERFORMANCE OF PROCEDURE OTHER THAN SPECIFIED HEREIN MAY RESULT IN HAZARDOUS RADIATION EXPOSURE.”

DANGER: INVISIBLE LASER RADIATION WHEN OPEN AND INTERLOCK FAILED OR DEFEATED. AVOID DIRECT EXPOSURE TO BEAM.



CAUTION: HAZARDOUS LASER RADIATION WHEN OPEN AND INTERLOCK DEFEATED.

ATTENTION: RAYONNEMENT LASER DANGEREUX SI OUVERT AVEC L'ENCLenchement DE SECURITE ANNULE.



CLASS 1  
LASER PRODUCT

### ADVARSEL

Usynlig laserstråling ved åbning, når sikkerhedsafbrydere er ude af funktion.  
Undgå udsættelse for stråling.

CAUTION: INVISIBLE LASER RADIATION WHEN OPEN AND INTERLOCKS DEFEATED. AVOID EXPOSURE TO BEAM.

VORSICHT: UNSICHTBARE LASERSTRAHLUNG TRITT AUS WENN DECKEL GEÖFFNET UND WENN SICHERHEITSVERRIEGELUNG ÜBERBRÜCKT IST. NICHT DEM STRAHL AUSSETZEN.

# GENERAL SPECIFICATIONS

Portable type digital audio disc (Compact disc) player

## A. Controls

- |                  |                             |
|------------------|-----------------------------|
| 1) Power         | : Slide                     |
| 2) Open/close    | : Push (pop type)           |
| 3) Play/pause    | : Push (cyclic)             |
| 4) Stop          | : Push                      |
| 5) Fast forward  | : Push (use up key)         |
| 6) Fast backward | : Push (use down key)       |
| 7) Music search  | : Push (up/down)            |
| 8) Repeat        | : Push (off/one/all/cyclic) |
| 9) Volume        | : Rotary                    |

## B. Indications

- |                      |                                      |
|----------------------|--------------------------------------|
| 1) Music (track No.) | : LCD 2 digits                       |
| 2) Play/pause        | : Dot in display (flashing at pause) |
| 3) Repeat (one)      | : ONE in LCD display                 |
| 4) Repeat (all)      | : ALL in LCD display                 |

## C. System

- |                     |                                 |
|---------------------|---------------------------------|
| 1) Pick up          | : 3 beam laser pick up          |
| 2) Error collection | : CIRC, double error correction |
| 3) D/A convertor    | : High speed 14 bit linear      |
| 4) Filter           | : LC filter                     |
| 5) Disc loading     | : Pop up system loading         |

## D. Terminals

- |                         |              |
|-------------------------|--------------|
| 1) Output (fixed level) | : 3.5mm dia. |
| 2) Output (head phone)  | : 3.5mm dia. |
| 3) DC power             | : 5.5mm dia. |

## E. Mechanical

- |              |                           |
|--------------|---------------------------|
| 1) Dimension | : 127(W) × 40(H) × 135(D) |
| 2) Weights   | : 600g                    |

## F. Others

- |                       |                   |
|-----------------------|-------------------|
| 1) Power supply       | : DC 9V           |
| 2) Power dissipations | : 3.6W            |
| 3) Battery life       | : 2.5H (alkaline) |

## PERFORMANCE SPECIFICATIONS

Digital audio disc (Compact disc) player

Item	Unit	Nominal	Limit	Cond.
1. S/N ratio	dB	83	75	JIS-A
S/N ratio (flat)	dB	75	67	Flat
2. Channel separation 1KHz	dB	75	67	BPF
3. Channel balance 1KHz	dB	—	< 2	
4. Frequency response 20Hz~18KHz	dB	±2	±3	0dB=1KHz
5. De-emphasis 1KHz	dB	-0.37	±1	
5KHz	dB	-4.53	±2.5	
16KHz	dB	-9.04	±2.5	
6. Harmonic dist. 1K Use 30KHz LPF	%	0.025	0.05	
7. Output volt. 1KHz	V	1.0	±0.25	
8. FF/FB mute level	dB	-12	—	
9. Wow & flutter	%	—	—	

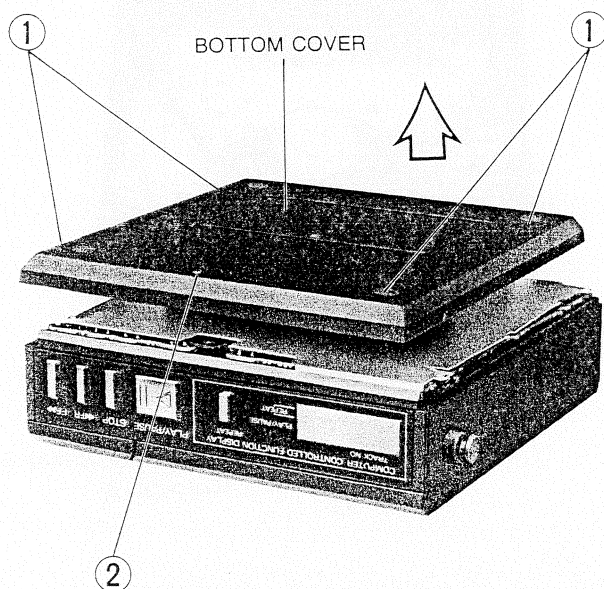
- Test disc : SONY YEDS-7 disc or equivalent.
- Power supply : DC 9V
- All items are measured without pre-emphasis unless otherwise specified.



# DISASSEMBLY INSTRUCTIONS

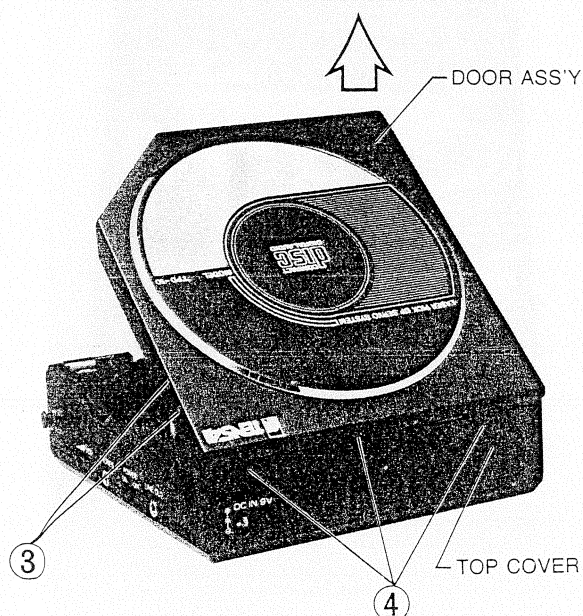
## 1. BOTTOM COVER REMOVAL

- (1) Turn unit over and put it on a "soft cloth".
- (2) Remove screw ① (4 pcs) and screw ② (1 pc) from the BOTTOM COVER.
- (3) Pull BOTTOM COVER out. (in the direction of arrow).



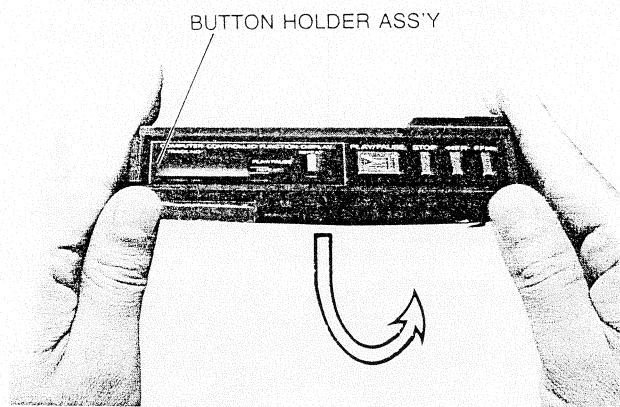
## 2. DOOR ASS'Y REMOVAL

- (1) Remove screw ③ (2 pcs) from the right side of DOOR.
- (2) Remove screw ④ (3 pcs) from the rear side of TOP COVER.
- (3) Pull DOOR ASS'Y out. (in the direction of arrow).



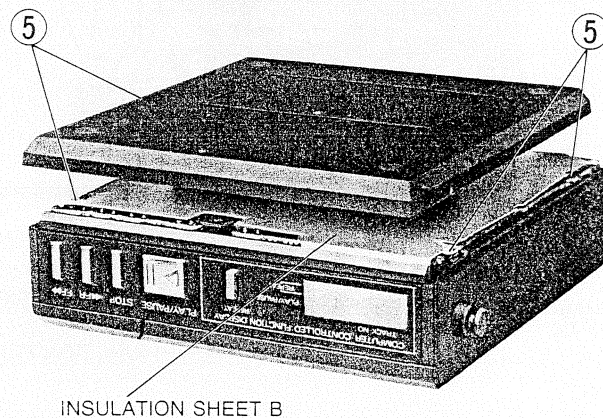
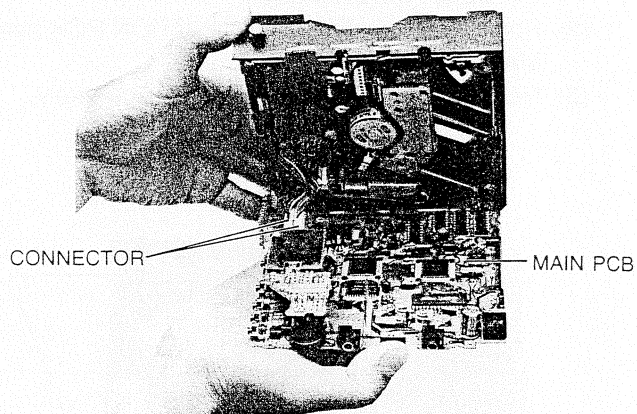
## 3. BUTTON HOLDER ASS'Y REMOVAL

- (1) Pull out the under edge side of BUTTON HOLDER ASS'Y. (in the direction of arrow) by both hands.
- (2) Remove CONTROL PLATE, BUTTON R and CONTROL BUTTON respectively carefully.



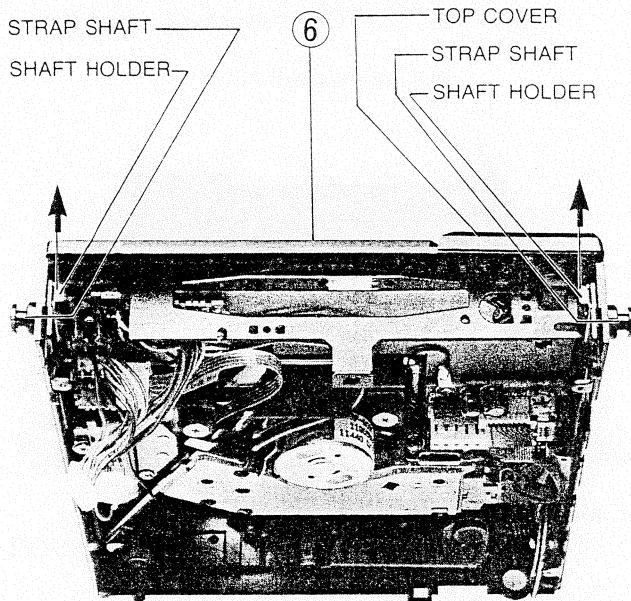
## 4. MAIN PCB REMOVAL

- (1) Remove screw ⑤ (4 pcs) and INSULATION SHEET B from the MAIN PCB.
- (2) Pull the right edge side (where POWER SWITCH and HEADPHONES JACK are located) by right hand in the downwards.
- (3) Remove connector (2 pcs) from the MAIN PCB.



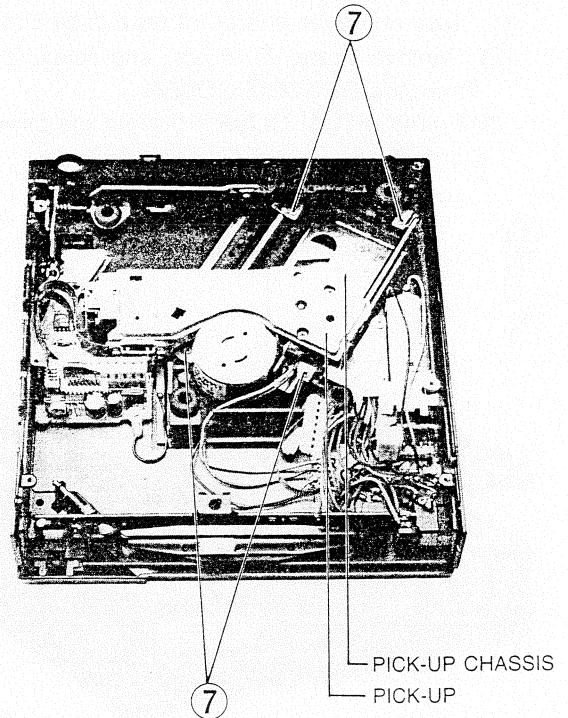
## 5. TOP COVER REMOVAL

- (1) Remove screw ⑥ (1 pc) from the TOP COVER.
- (2) Pull out 2 pcs of SHAFT HOLDER in the direction of arrow.
- (3) Remove STRAP SHAFT from both side of TOP COVER.
- (4) Pull TOP COVER out upwards.



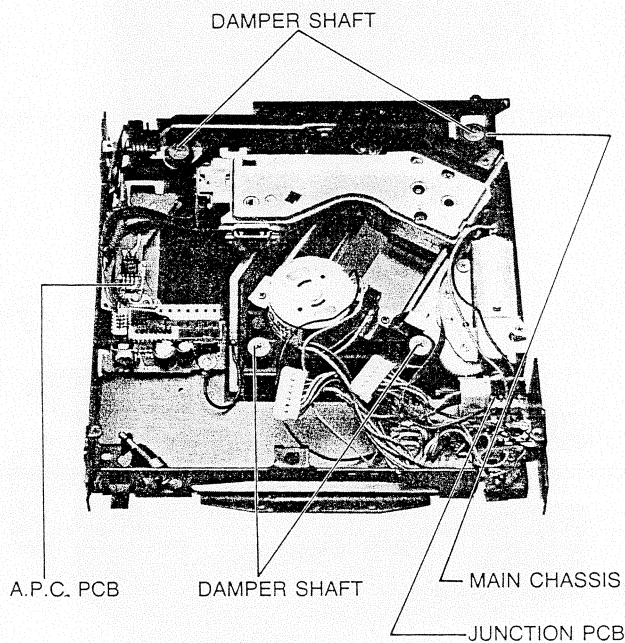
## 7. PICK UP REMOVAL

- (1) Remove screw ⑦ (4 pcs) from PICK UP CHASSIS.
- (2) Remove PICK UP carefully.



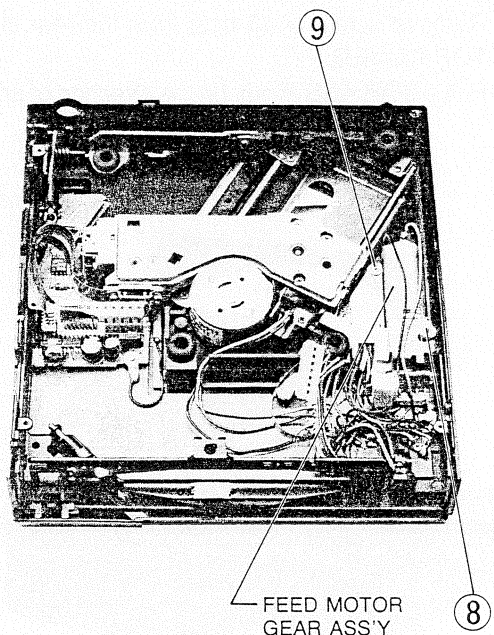
## 6. CD DECK PORTION REMOVAL

- (1) Remove 4 pcs of DAMPER SHAFT from the CD DECK MECHANISM.
- (2) Remove A.P.C. PCB and JUNCTION PCB from MAIN CHASSIS.
- (3) Remove CD DECK MECHANISM carefully.

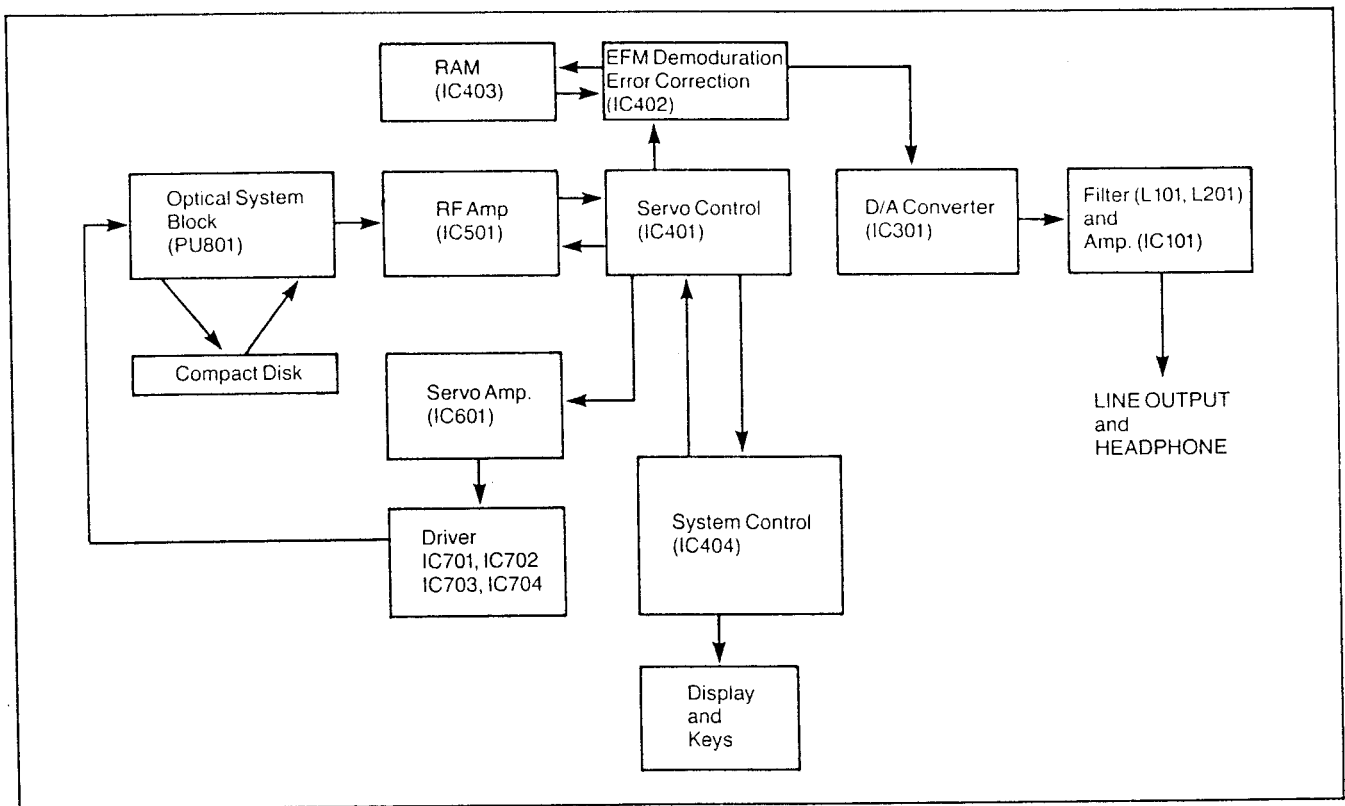


## 8. FEED MOTOR GEAR ASS'Y REMOVAL

- (1) Remove screw ⑧ (1 pc) and screw ⑨ (1 pc) from PICK UP CHASSIS.
- (2) Replace FEED MOTOR GEAR ASS'Y



## CIRCUIT DESCRIPTION



This unit is configured as shown in the block diagram above.

The IC401/402 is the heart of the circuitry, and the IC404 is the man/machine interface e.g. upon pressing the PLAY button it enters the routine for activating the Play Mode, sending the Play command to the IC401/402 and entering the Play Mode. A compact audio disc stores musical information in digital form.

This information is read back from the disc by a laser beam. Variation in the beam reflected from the disc is then converted into analog signals.

Below discuss how the information on the disc is converted into the original audio signal.

The variation in reflection of the laser beam are read as variations in the current by the photo diode in the pick-up section (by using the characteristics of the photo diode and that the current changes according to the amount of the light falling on to it), and then converted into a current signal. This current signal is added to the IC501 together with signals containing tracking and focus error, if detected by the photodiode.

These signals are then amplified by the IC501.

These signals, called EFM signal, contain not only musical information but also a sync signal, information on time and address called Q data, and CRC check signal.

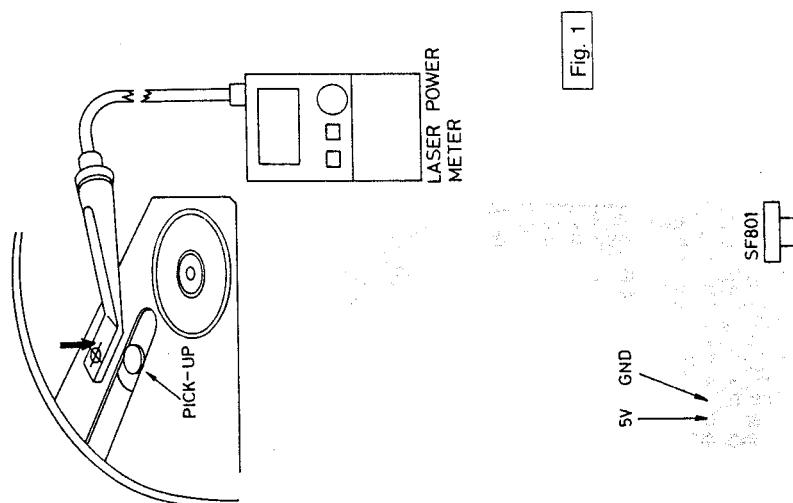
The signal are then applied to the IC402, where they are immediately stored in the RAM. Next, they are, when read back from the RAM, further divided into individual units of original information, being checked for data errors through the cyclic redundancy check. Any erroneous data is thus rewritten. Of these unit of information only the musical information is sent to the D/A converter, IC301, which converts 16-bit data input in 2's complement form to an analog signal containing 14-bit mantissa with 7-bit exponent which are proportional to the input digital signal. The analog signal thus generated by the D/A converter is then sent to the low pass filter and Audio amplifier IC101.

Music recorded on the disc is thus played by repeating the above sequences for the left and right channels alternately.

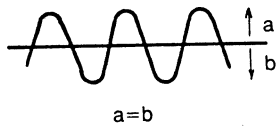
## ADJUSTMENT PROCEDURE

No.	Adjust Item	Test Point		Adjustment		Measuring Instrument
		Test Disc	Output	Adjust Point	Adjust Method	
1	LASER POWER ADJ.			SF801	1) Supply DC 5V to +B and GND of APC PCB. 2) Contact the laser sensor with the pick-up and make adjustment of SF801 so that $250\mu\text{W} \pm 0/-3\mu\text{W}$ is obtained. <b>Caution:</b> Laser power must not exceed $250\mu\text{W}$ even if during the adjustment.	LASER POWER METER  Fig. 1, 2
2	TRACKING BALANCE ADJ.	SONY TYPE 4	TP1	SF504	1) Connect oscilloscope between TP1 and $V_{\text{REF}}$ . 2) Connect Pin 41 of IC404 to GND. 3) Turn unit Power on. 4) Observing the oscilloscope and make adjustment SF504 until the positive and negative peaks of the waveform become equal at $V_{\text{REF}}$ level.	OSCILLOSCOPE DC RANGE  Fig. 3
3	FOCUS OFFSET ADJ.	SONY TYPE 4	TP2	SF501	1) Connect oscilloscope between TP2 and $V_{\text{REF}}$ . 2) Observing the oscilloscope and make adjustment SF501 until the voltage of TP2 becomes 0mVp-p (Compared with $V_{\text{REF}}$ ) at STOP mode.	OSCILLOSCOPE DC RANGE  Fig. 3
4	RF LEVEL ADJ.	SONY TYPE 4	TP3	SF503	1) Connect oscilloscope between TP3 and $V_{\text{REF}}$ . 2) Observing the oscilloscope and make adjustment SF503 until level of TP3 becomes 1.4Vp-p at PLAY mode.	OSCILLOSCOPE  Fig. 3
5	JITTER ADJUSTMENT	SONY TYPE 4	TP3	SF502	1) Observe TP3 of Main PCB with oscilloscope, adjust SF502 so that a clear trace of waveform pattern can be obtained. Fig. 4.	OSCILLOSCOPE

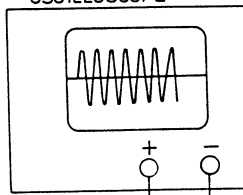
## EQUIPMENT CONNECTIONS



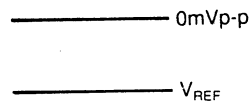
TRACKING BALANCE ADJ.



OSCILLOSCOPE



FOCUS OFFSET ADJ.



RF LEVEL

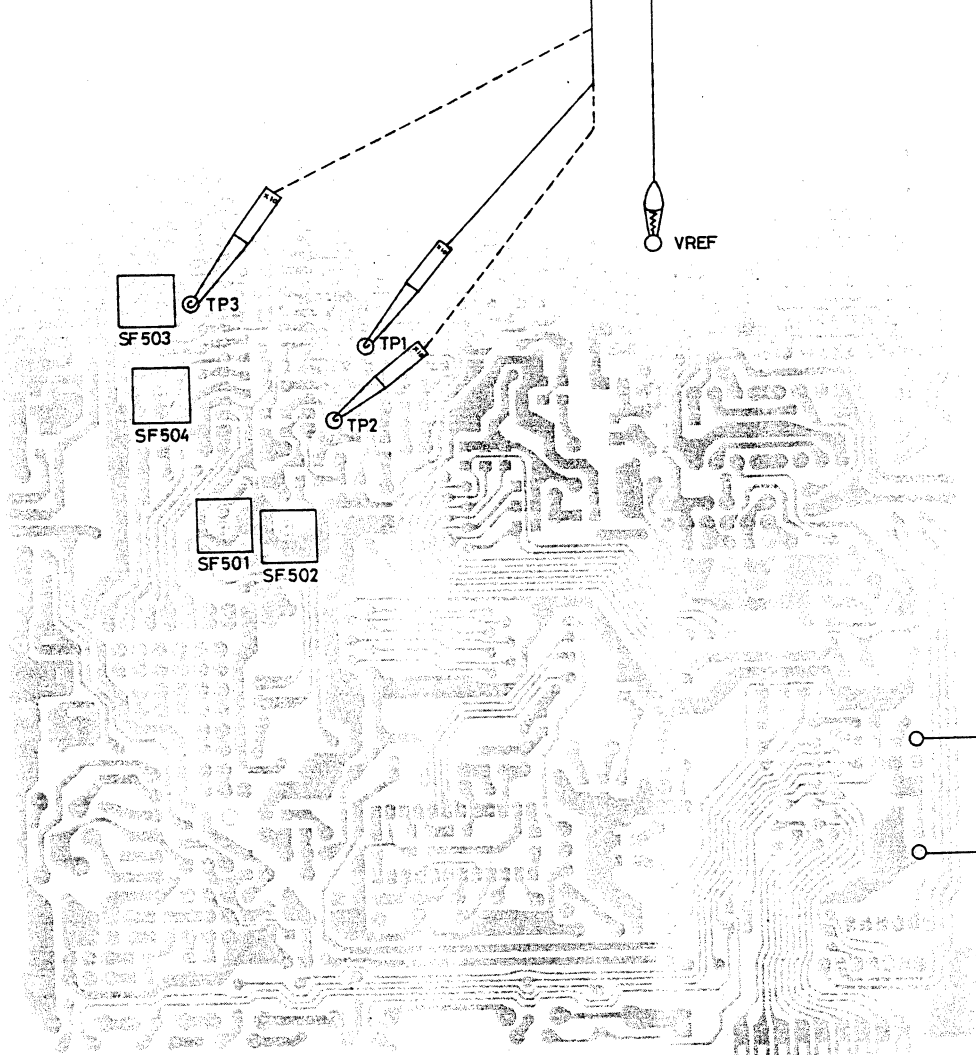
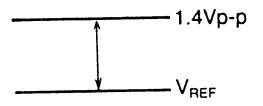


Fig. 3

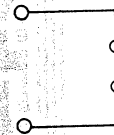


Fig. 2

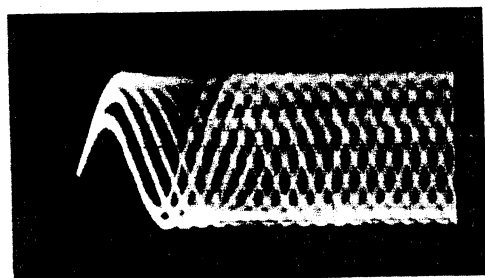
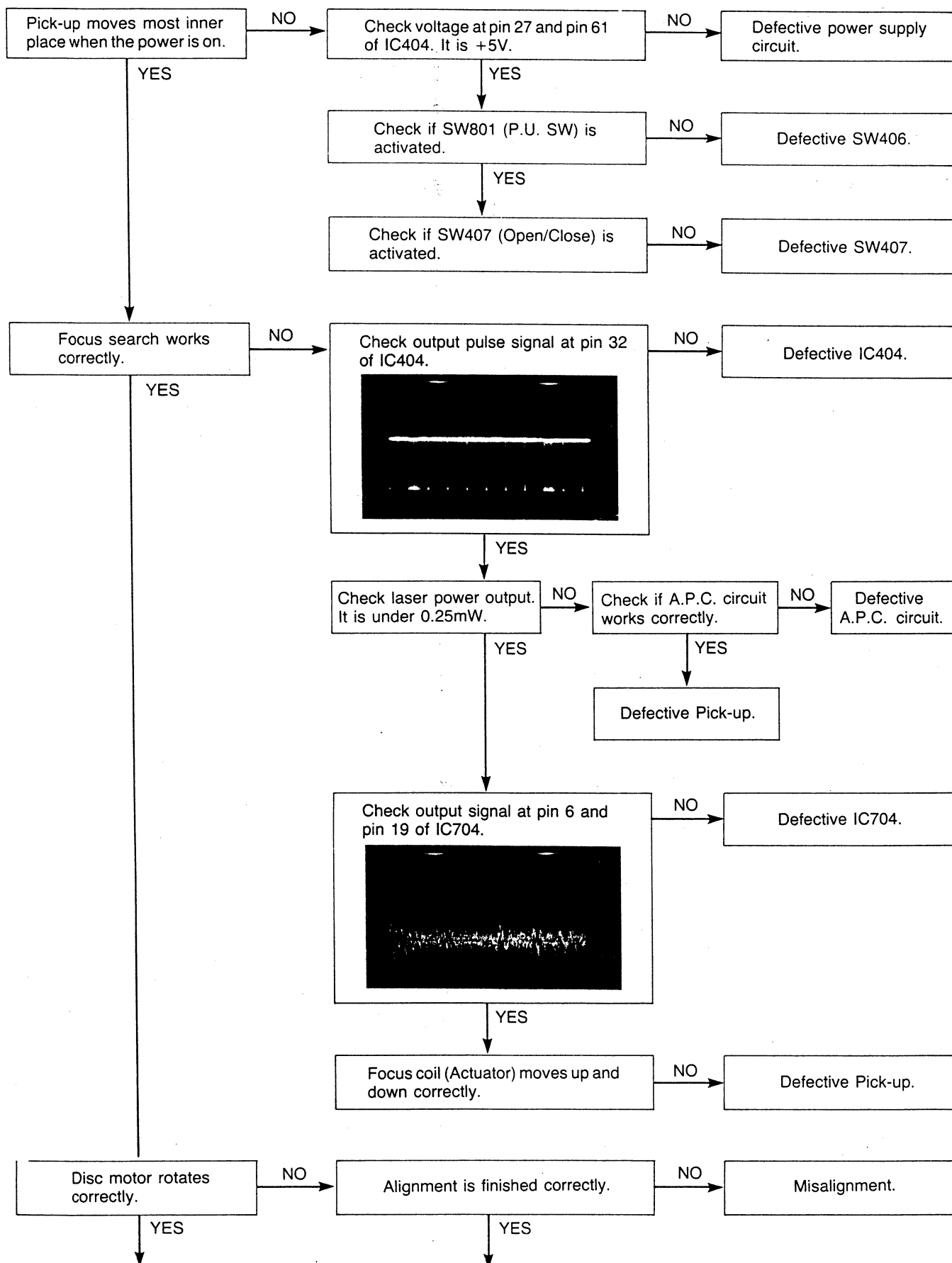
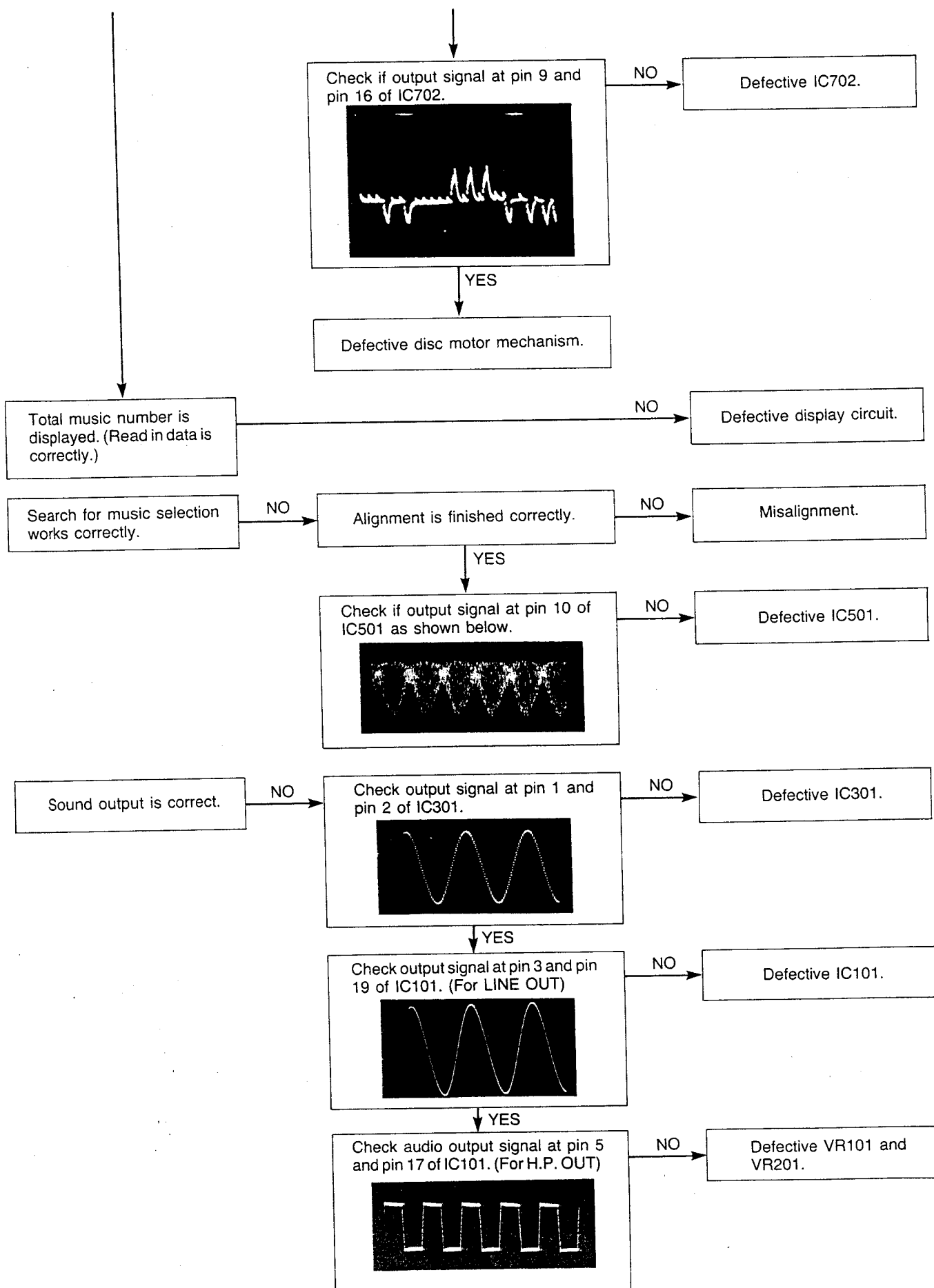


Fig. 4

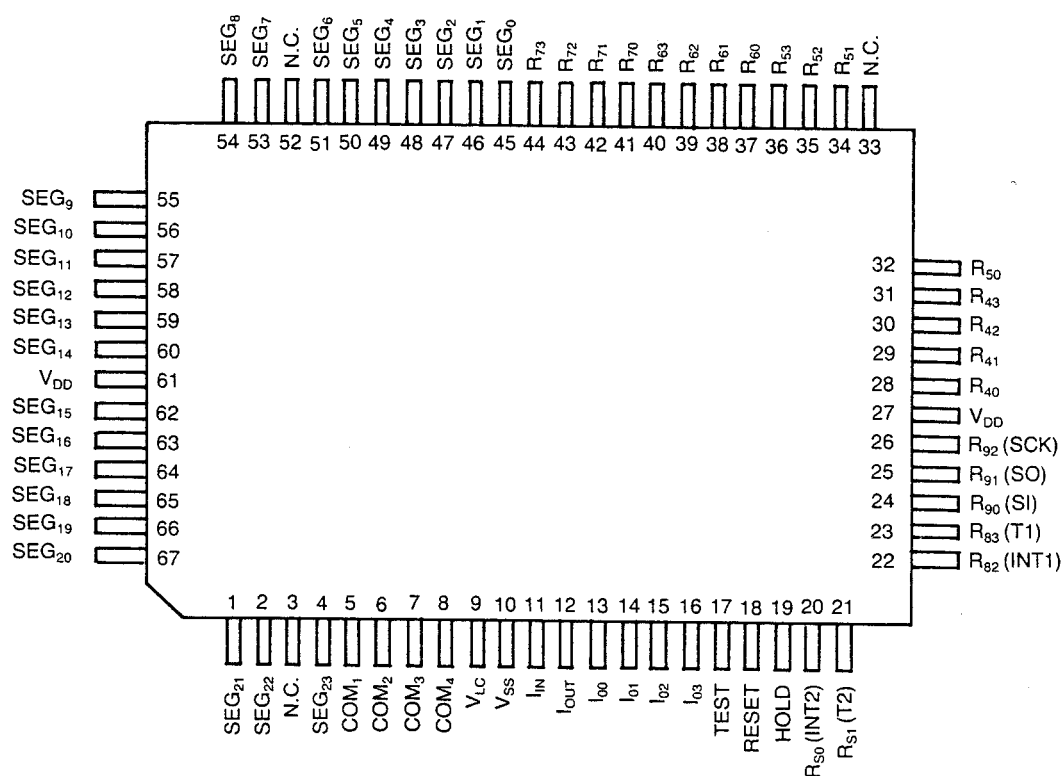
# TROUBLE SHOOTING





## TERMINAL DESCRIPTION (IC404)

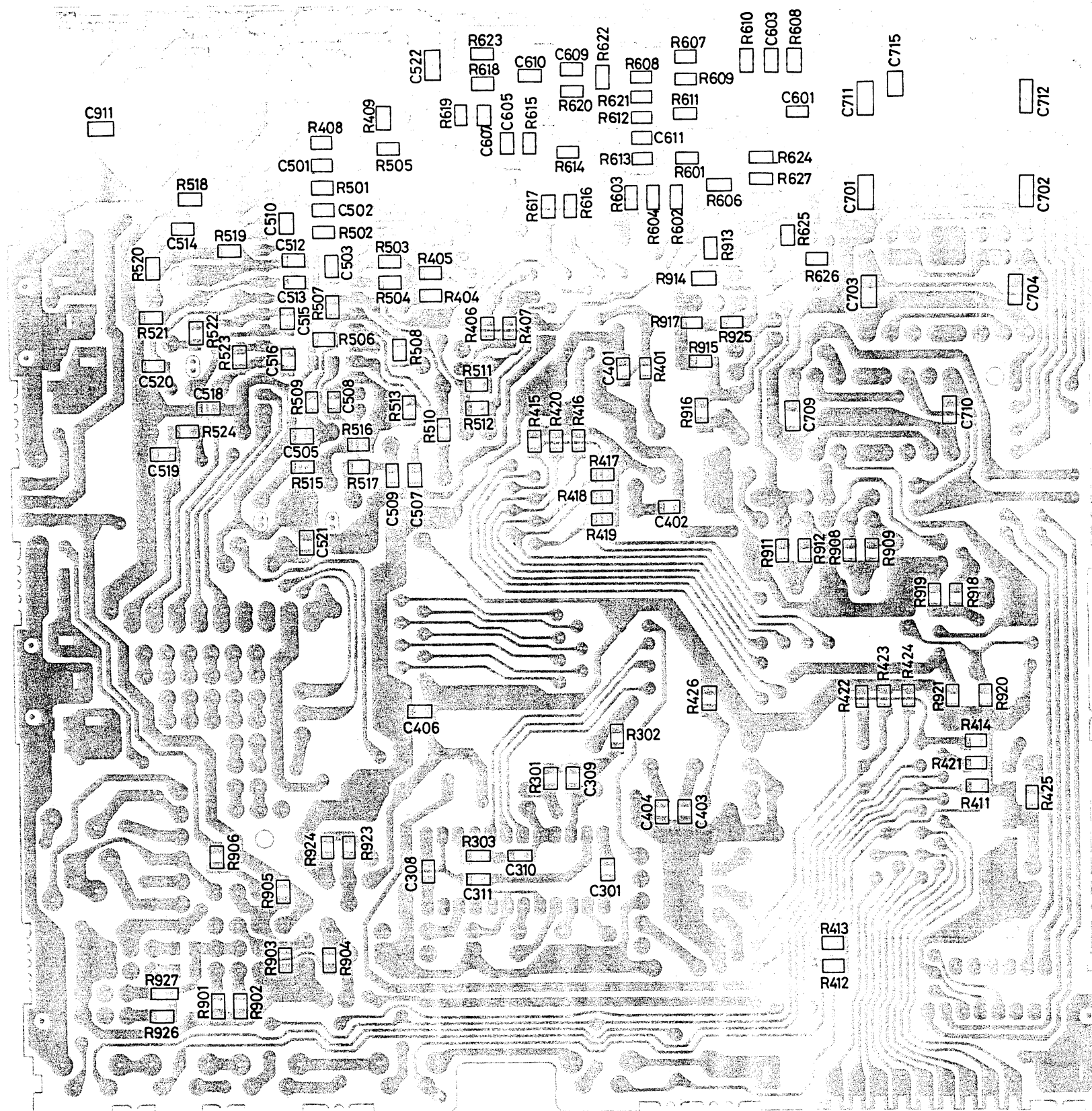
Pin No.	I/O	Pin Designation	Function
5~	OUT	COM <sub>1</sub> ~COM <sub>3</sub>	LCD Display Common, Driver output.
9	—	V <sub>LC</sub>	LCD Display, Driver voltage.
10	—	V <sub>SS</sub>	Ground pin terminal (0V).
11	IN	X <sub>IN</sub>	Clock input terminal (from TC9201F 4.23MHz).
13	IN	K <sub>OO</sub>	Limit switch input for Pick-up. Pick-up moves toward the lead-in area when the limit switch signal is "high". Pick-up stops its moving when the limit switch signal is "low" at the moment pick-up enters into the lead-in area.
14	IN	K <sub>01</sub>	Open/Close signal input.
18	IN	RST	Reset, Initialization signal input.
21	IN	LO	Low battery input.
26	I/O	DA/CO	Control I/O for Command & Data (output of "L" signal when 1st word of the command be transmitted and the "L" signal be introduced from TC9201F as ACK signal when the command/data be accepted correctly).
27	—	V <sub>DD</sub>	Power supply input pin (+V).
28~31	I/O	BUS <sub>0</sub> ~BUS <sub>3</sub>	I/O BUS line for Command & Data (output for Command & Data at 1st step of BUCK to TC9201F).
32	OUT	BUCK	Clock out terminal for Command & Data (be "high" position when no transmission of Command & Data to TC9201F).
33	OUT	MUTE	Muting output.
36	—	SAVE	Power saving.
37~38	OUT	KEY OUT	Control key output.
41~44	IN	KEY IN	Control key input.
45~50	OUT	SEG <sub>0</sub> ~SEG <sub>5</sub>	LCD Display segment driver output.



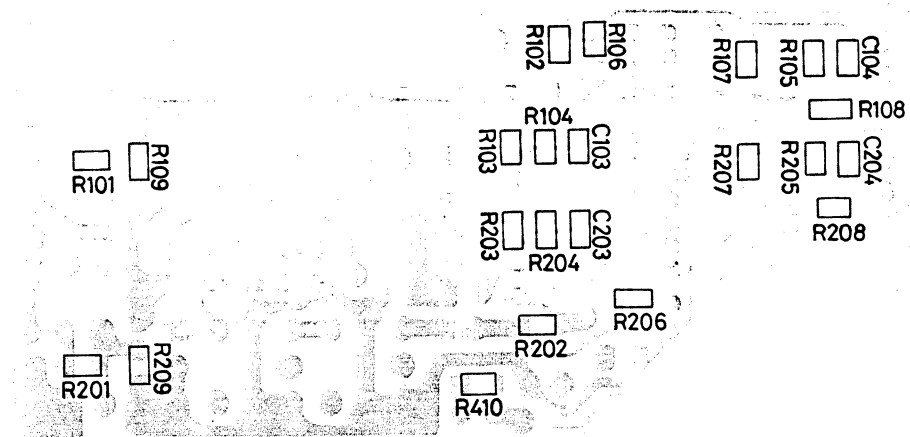


### P.C.B. VIEW I

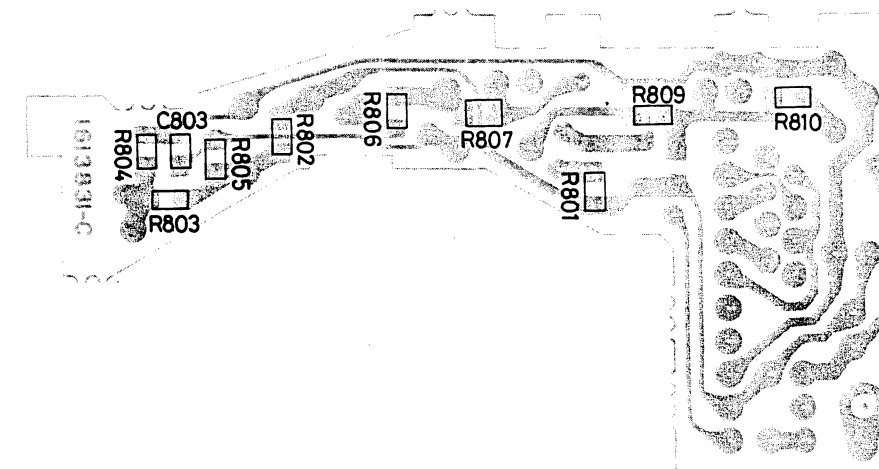
**MAIN P.C.B.**



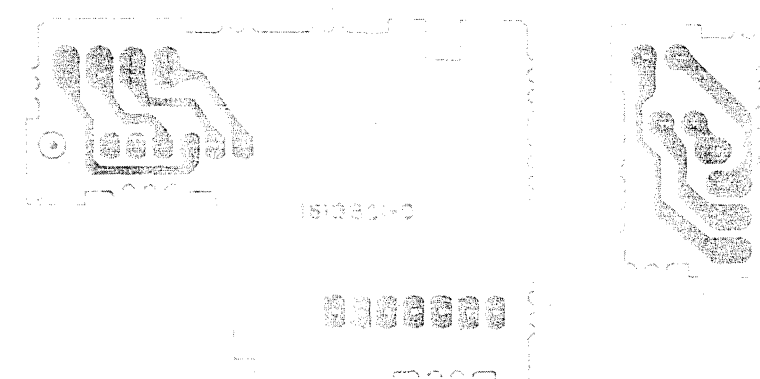
## AUDIO P.C.B.



**A.P.C. P.C.B.**

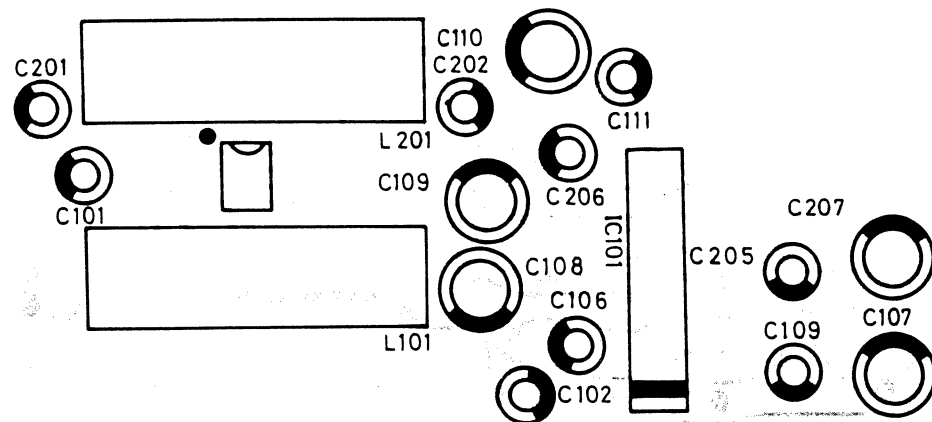


**JUNCTION P.C.B.**

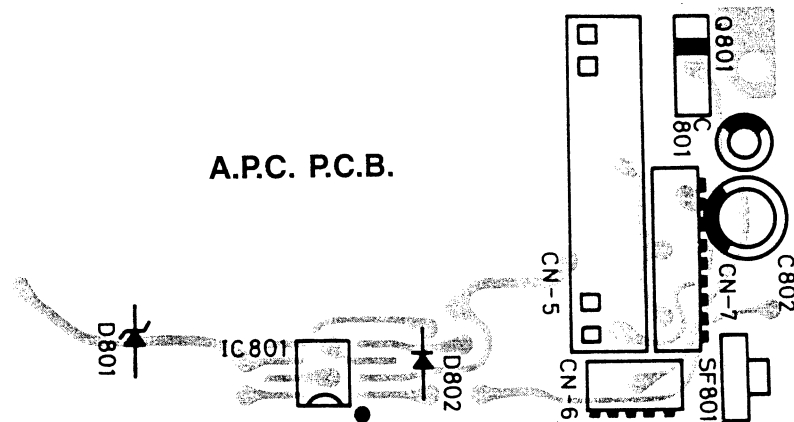


# P.C.B. VIEW II

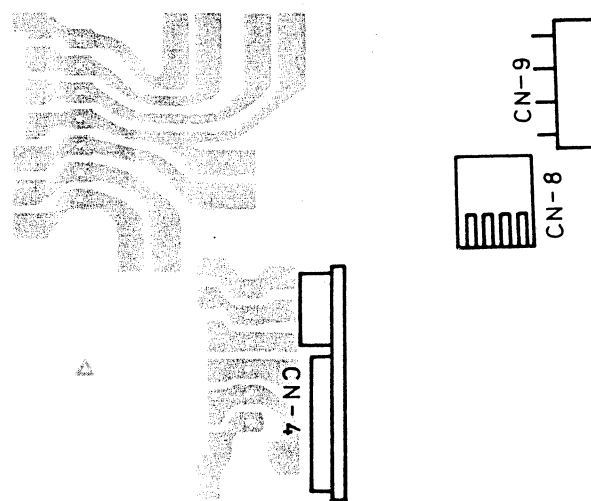
## AUDIO P.C.B.



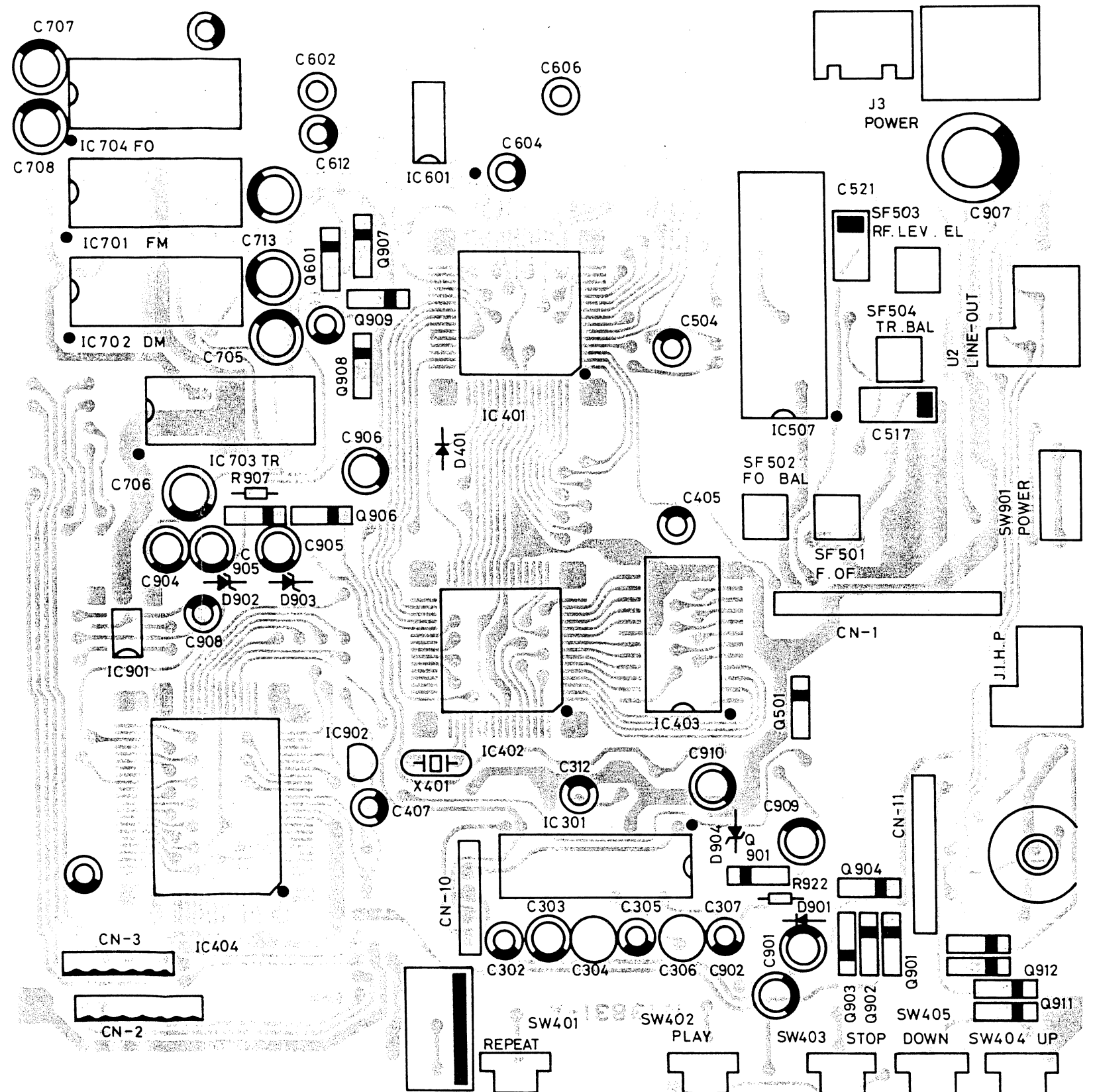
## A.P.C. P.C.B.



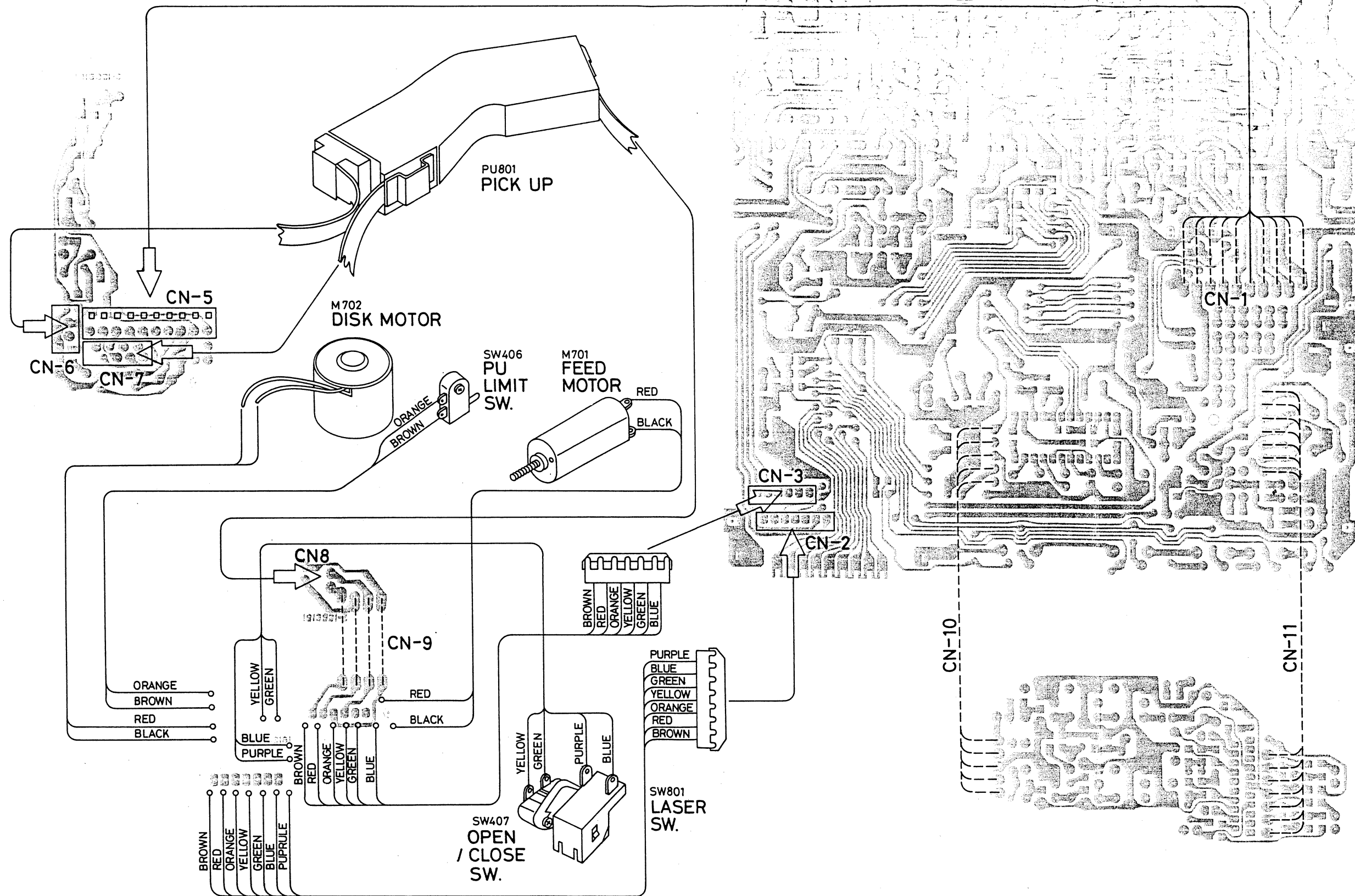
## JUNCTION P.C.B.



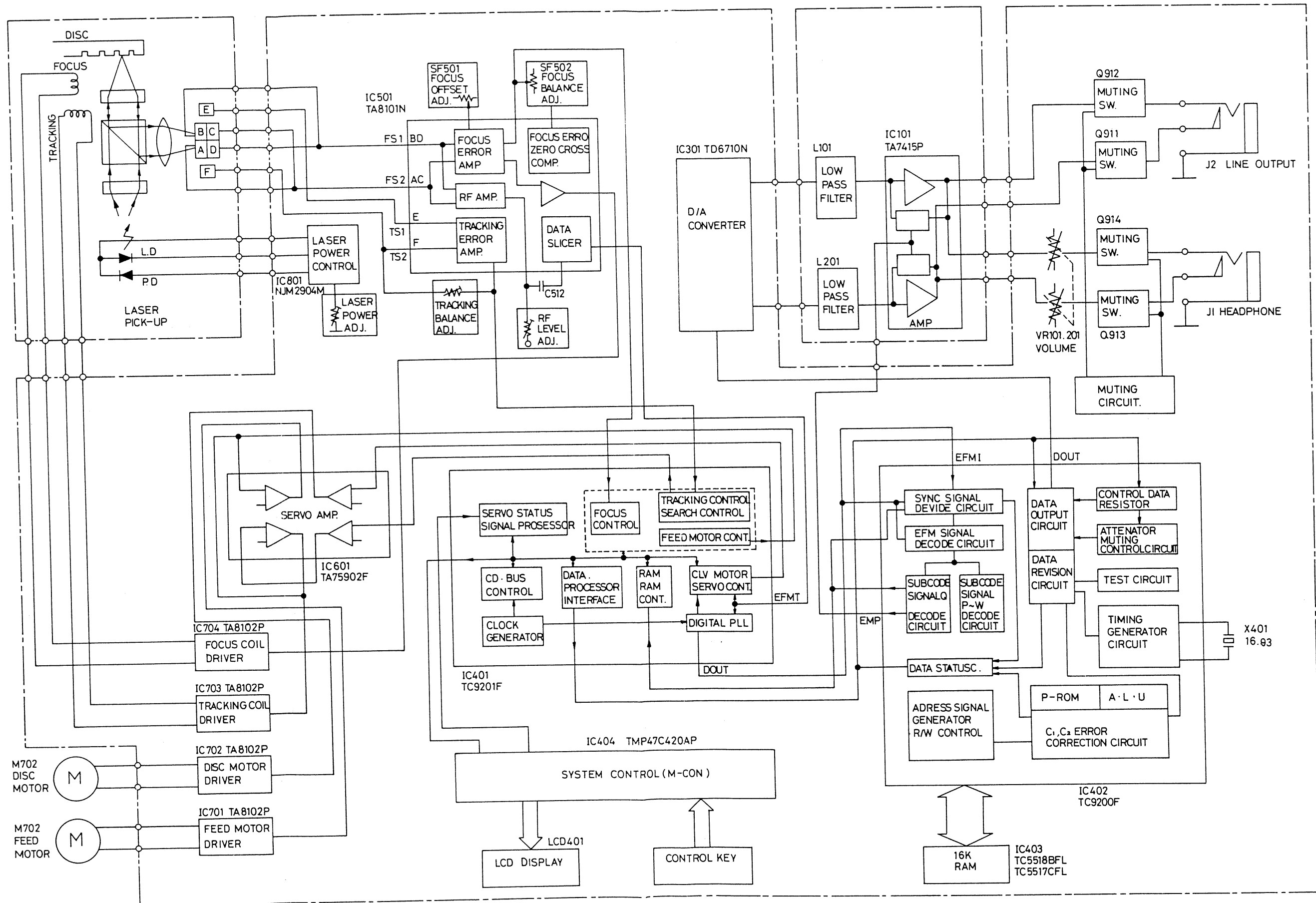
## MAIN P.C.B.



# WIRING DIAGRAM

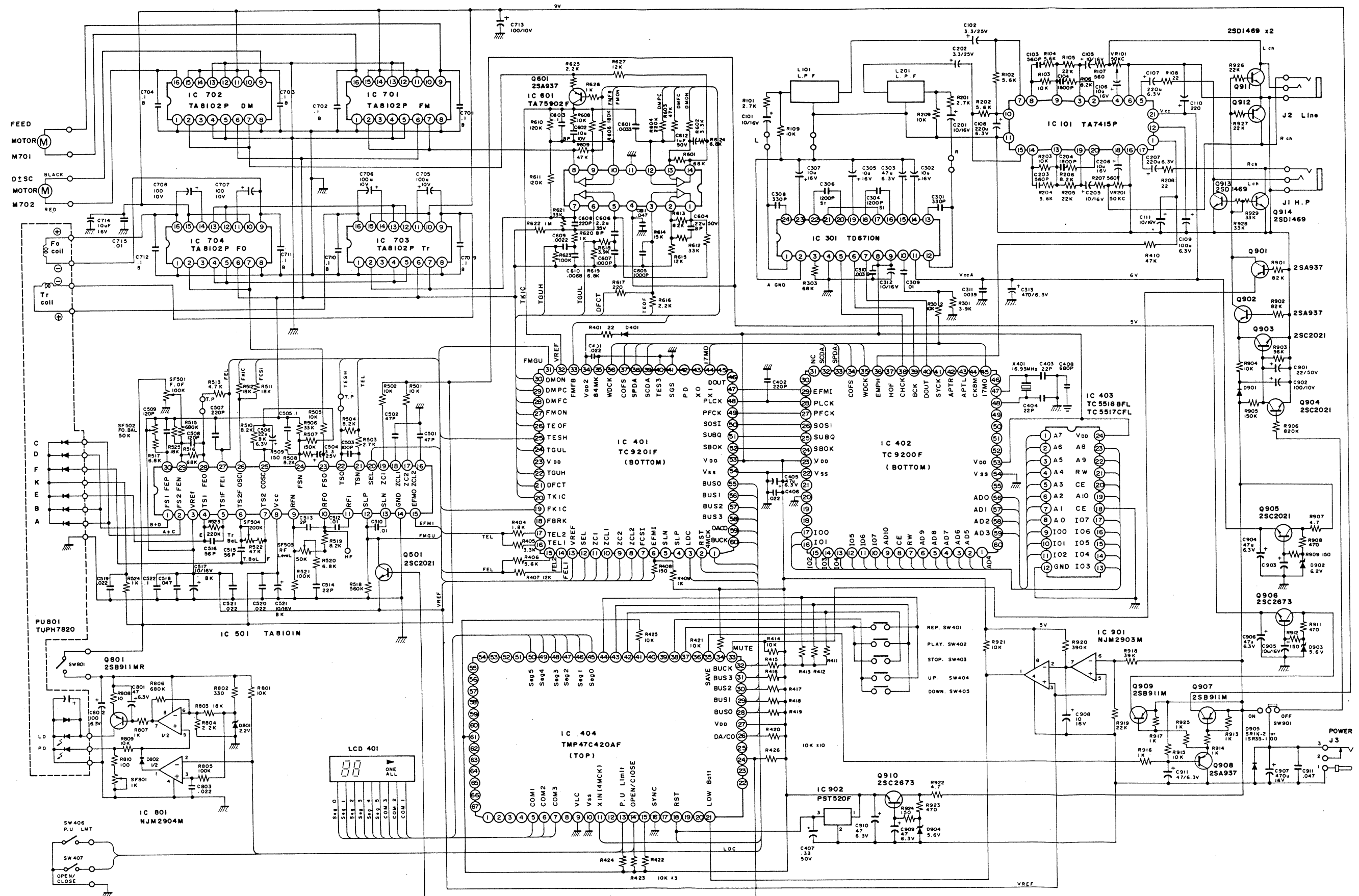


# BLOCK DIAGRAM

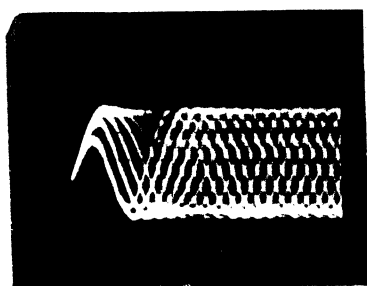




# SCHEMATIC DIAGRAM

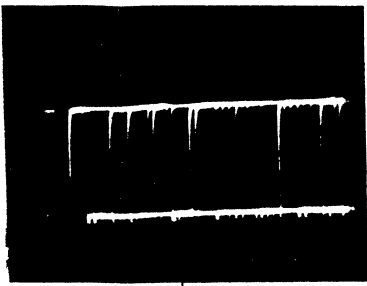


WAVE FORM INFORMATION



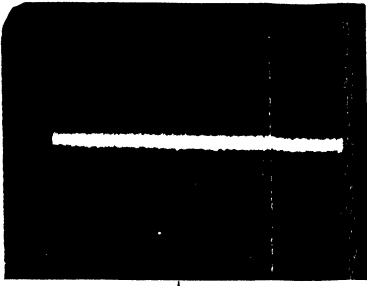
EYE PATTERN

IC501  
Pin 10  
1.4Vp-p



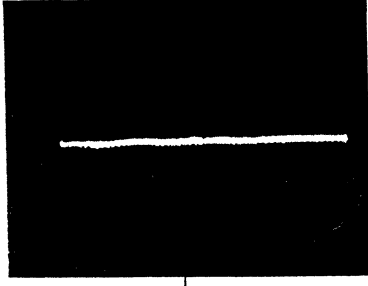
EFM

IC501 (TA8101N)  
Pin 15  
5Vp-p



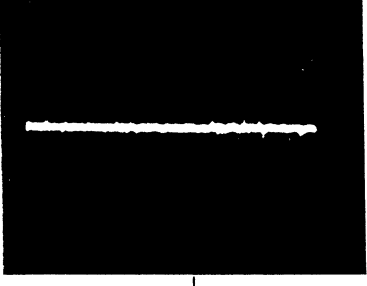
TRACKING  
ERROR

IC501  
Pin 22  
200mVp-p



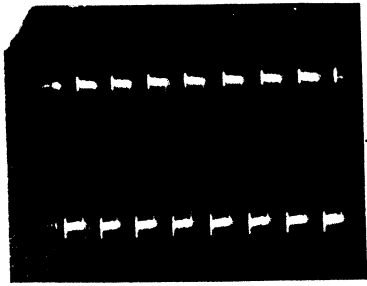
TRACKING

IC501  
Pin 22  
150mVp-p



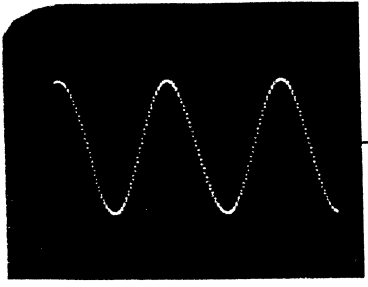
FOCUS  
ERROR

IC501  
Pin 28  
200mVp-p



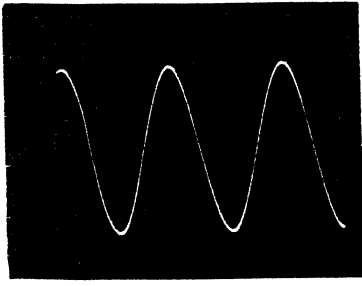
BUS CLOCK

IC301 (DA converter)  
Pin 6  
5Vp-p



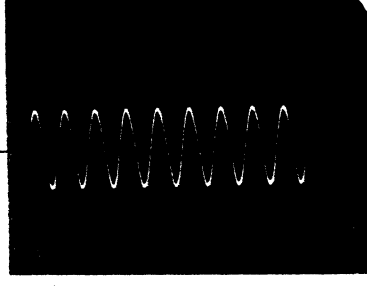
AUDIO  
DA CONV.  
OUTPUT

IC301  
Pin 1 (Lch)  
Pin 12 (Rch)  
2.5Vp-p



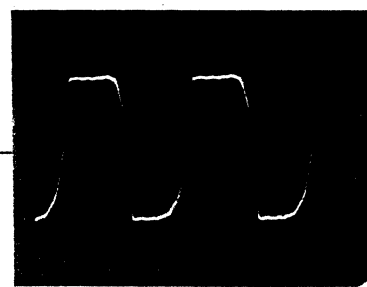
AUDIO  
LINE OUTPUT

VR101 (Lch)  
VR201 (Rch)  
3.2Vp-p



X'TAL

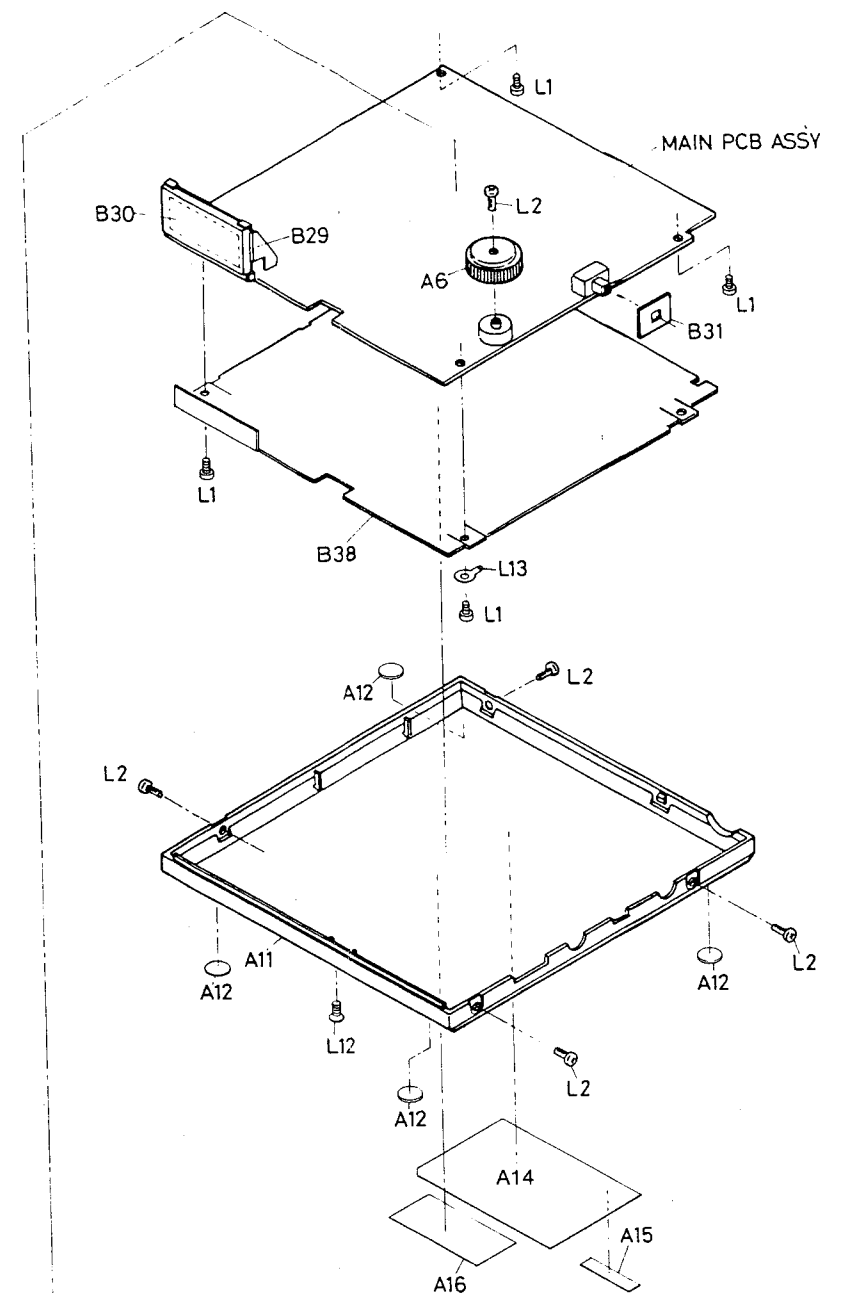
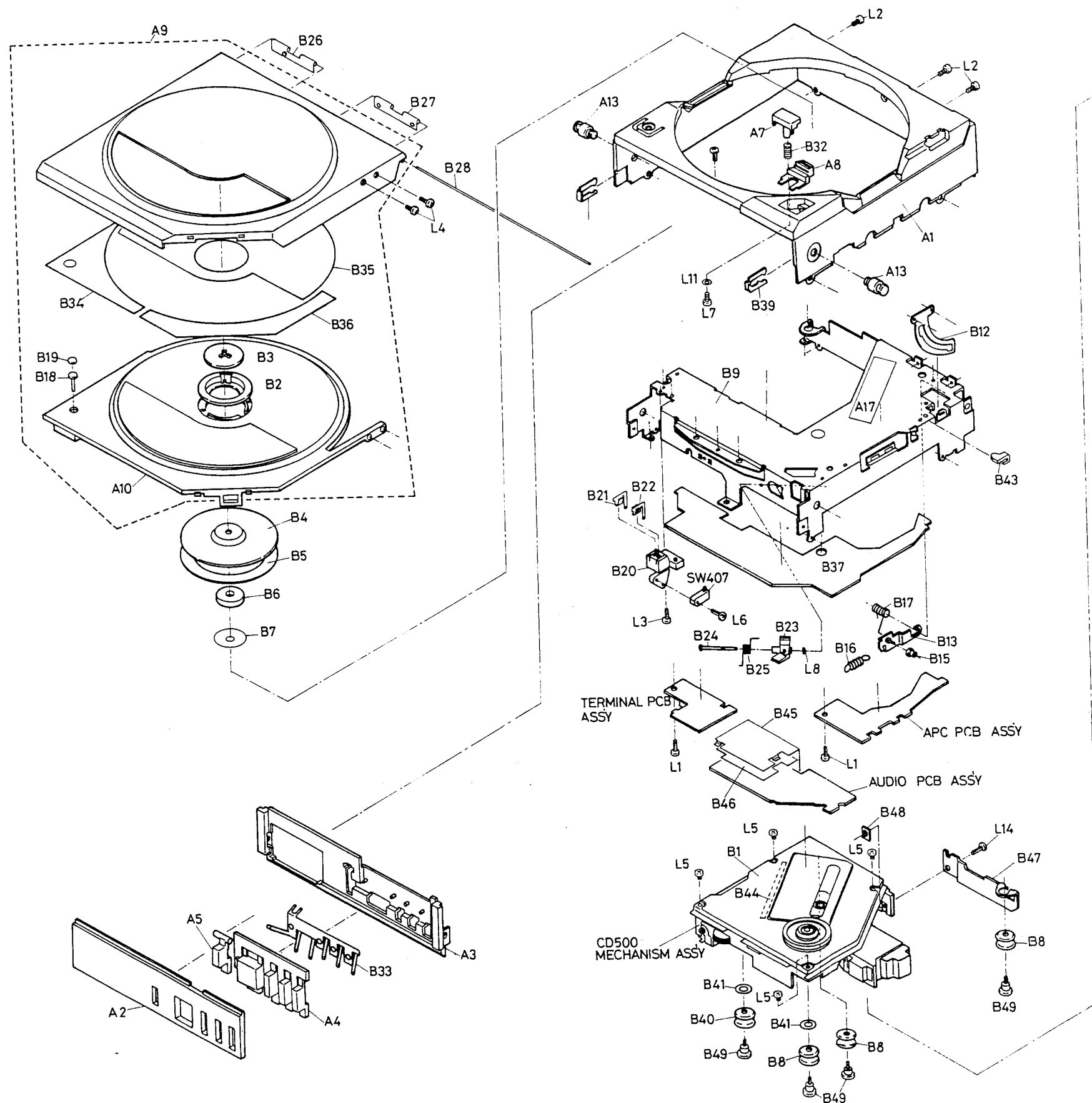
IC402  
Pin 48  
3Vp-p  
0.05μsec/cm



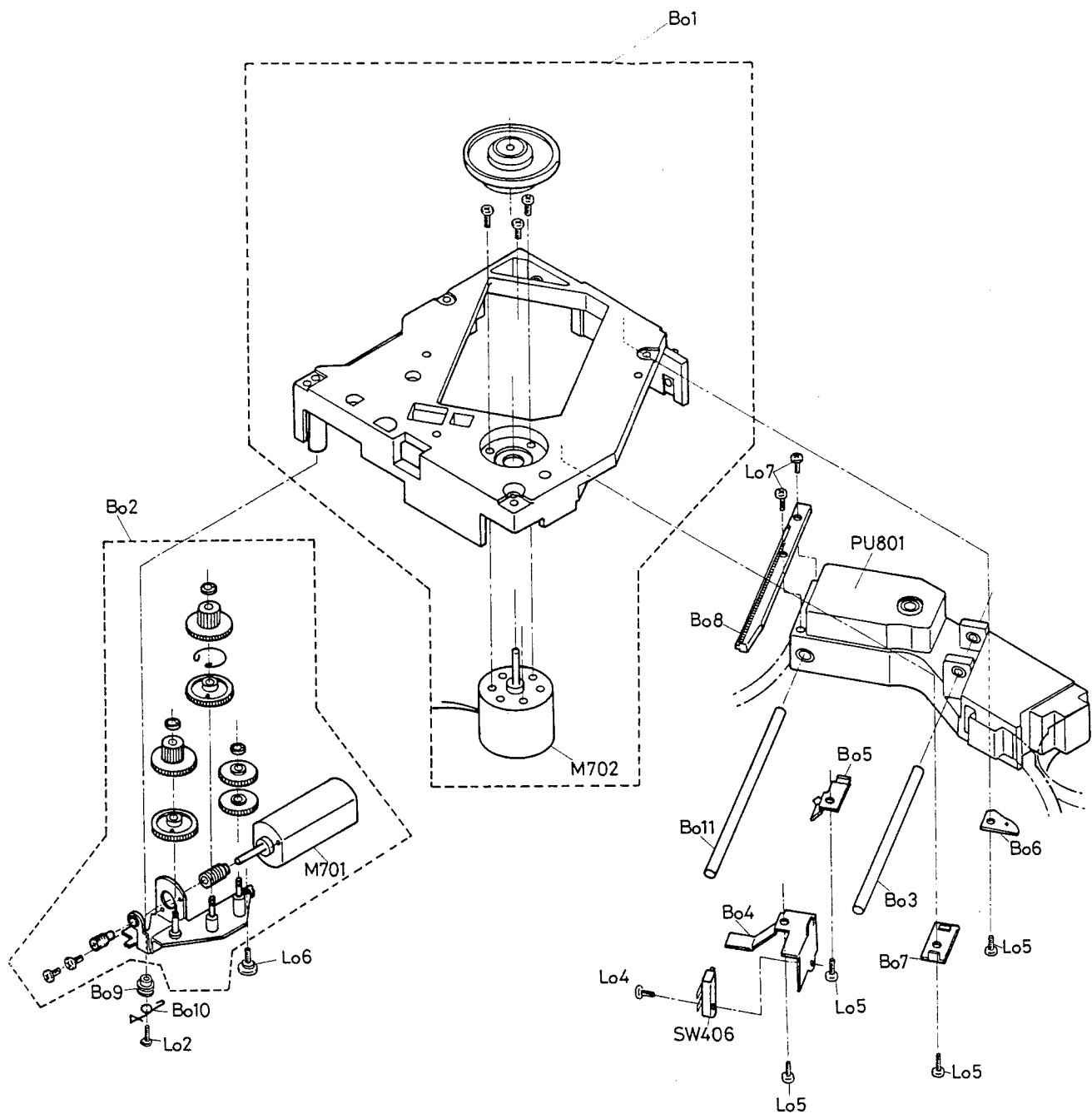
4MCK  
CLOCK

IC401  
Pin 1  
5Vp-p  
0.24μsec/cm

# EXPLODED VIEW (CABINET)



EXPLODED VIEW (DECK)



ELECTRICAL PARTS LIST

Ref. No.	Part No.	Description
1613831-AX		Main P.C.B. Ass'y
CAPACITORS		
C301	12B3331C	Cap. Chip Ceramic 330pF
C302	526T106	Cap. Electrolytic 10 $\mu$ F/16V
C303	526R476	Cap. Electrolytic 47 $\mu$ F/6.3V
C304	1230122	Cap. Styrol 1200pF
C305	526T106	Cap. Electrolytic 10 $\mu$ F/16V
C306	1230122	Cap. Styrol 1200pF
C307	526T106	Cap. Electrolytic 10 $\mu$ F/16V
C308	12B3331C	Cap. Chip Ceramic 330pF
C309	12B3103C	Cap. Chip Ceramic 0.01 $\mu$ F
C310	12B3392C	Cap. Chip Ceramic 3900pF
C311	12B3392C	Cap. Chip Ceramic 3900pF
C312	526T106	Cap. Electrolytic 10 $\mu$ F/16V
C313	126A477	Cap. Electrolytic 470 $\mu$ F/6.3V
C401	12F3223C	Cap. Chip Ceramic 0.022 $\mu$ F
C402	12B3221C	Cap. Chip Ceramic 220pF
C403	12CH220C	Cap. Chip Ceramic 22pF
C404	12CH220C	Cap. Chip Ceramic 22pF
C405	121R476	Cap. Electrolytic 47 $\mu$ F/6.3V
C406	12F3223C	Cap. Chip Ceramic 0.022 $\mu$ F
C407	121W334	Cap. Electrolytic 0.33 $\mu$ F/50V
C408	12B3681C	Cap. Chip Ceramic 680pF
C501	12CH470C	Cap. Chip Ceramic 47pF
C502	12CH470C	Cap. Chip Ceramic 47pF
C503	12CH101C	Cap. Chip Ceramic 100pF
C504	121U335	Cap. Electrolytic 3.3 $\mu$ F/25V
C505	12B2104C	Cap. Chip Ceramic 0.1 $\mu$ F
C506	562B226	Cap. Electrolytic 22 $\mu$ F/6.3V
C507	12B3221C	Cap. Chip Ceramic 220pF
C508	12CH121C	Cap. Chip Ceramic 120pF
C509	12CH121C	Cap. Chip Ceramic 120pF
C510	12B3103C	Cap. Chip Ceramic 0.01 $\mu$ F
C512	12B3103C	Cap. Chip Ceramic 0.01 $\mu$ F
C513	12CH209C	Cap. Chip Ceramic 2pF
C514	12CH220C	Cap. Chip Ceramic 22pF
C515	12CH560C	Cap. Chip Ceramic 56pF
C516	12CH560C	Cap. Chip Ceramic 56pF
C517	526D106	Cap. Electrolytic 10 $\mu$ F/16V
C518	12F3473C	Cap. Chip Ceramic 0.047 $\mu$ F
C519	12F3223C	Cap. Chip Ceramic 0.022 $\mu$ F
C520	12F3223C	Cap. Chip Ceramic 0.022 $\mu$ F
C521	12F3223C	Cap. Chip Ceramic 0.022 $\mu$ F
C522	12B2104C	Cap. Chip Ceramic 0.1 $\mu$ F
C523	526D106	Cap. Electrolytic 10 $\mu$ F/16V
C601	12B3103C	Cap. Chip Ceramic 3300pF
C602	1220760	Cap. Electrolytic 10 $\mu$ F/10V
C603	12B2104C	Cap. Chip Ceramic 0.1 $\mu$ F
C604	1220762	Cap. Electrolytic 0.22 $\mu$ F/50V
C605	12B3102C	Cap. Chip Ceramic 1000pF
C606	1220774	Cap. Electrolytic 1 $\mu$ F/35V
C607	12B3102C	Cap. Chip Ceramic 1000pF
C608	12B3221C	Cap. Chip Ceramic 220pF
C609	12B3222C	Cap. Chip Ceramic 2200pF

Ref. No.	Part No.	Description
C610	12B3682C	Cap. Chip Ceramic 6800pF
C611	12F3473C	Cap. Chip Ceramic 0.047 $\mu$ F
C612	121W105	Cap. Electrolytic 1 $\mu$ F/50V
C613	12X2103	Cap. SR 0.01 $\mu$ F
C701	12B2104C	Cap. Ceramic Chip 0.1 $\mu$ F
C702	12B2104C	Cap. Ceramic Chip 0.1 $\mu$ F
C703	12B2104C	Cap. Ceramic Chip 0.1 $\mu$ F
C704	12B2104C	Cap. Ceramic Chip 0.1 $\mu$ F
C705	121S107	Cap. Electrolytic 100 $\mu$ F/10V
C706	121S107	Cap. Electrolytic 100 $\mu$ F/10V
C707	121S107	Cap. Electrolytic 100 $\mu$ F/10V
C708	121S107	Cap. Electrolytic 100 $\mu$ F/10V
C709	12B2104C	Cap. Ceramic Chip 0.1 $\mu$ F
C710	12B2104C	Cap. Ceramic Chip 0.1 $\mu$ F
C711	12B2104C	Cap. Ceramic Chip 0.1 $\mu$ F
C712	12B2104C	Cap. Ceramic Chip 0.1 $\mu$ F
C713	121S107	Cap. Electrolytic 100 $\mu$ F/10V
C714	121T106	Cap. Electrolytic 10 $\mu$ F/16V
C715	12B3103C	Cap. Ceramic Chip 0.01 $\mu$ F
C901	121S226	Cap. Electrolytic 22 $\mu$ F/10V
C902	526T107	Cap. Electrolytic 100 $\mu$ F/16V
C903	121R476	Cap. Electrolytic 47 $\mu$ F/6.3V
C904	121R476	Cap. Electrolytic 47 $\mu$ F/6.3V
C905	121R476	Cap. Electrolytic 47 $\mu$ F/6.3V
C906	121T106	Cap. Electrolytic 10 $\mu$ F/16V
C907	126C477	Cap. Electrolytic 470 $\mu$ F/16V
C908	121T106	Cap. Electrolytic 10 $\mu$ F/16V
C909	121R476	Cap. Electrolytic 47 $\mu$ F/6.3V
C910	121R476	Cap. Electrolytic 47 $\mu$ F/6.3V
C911	121T476	Cap. Electrolytic 47 $\mu$ F/16V
C912	12F3473C	Cap. Chip Ceramic 0.047 $\mu$ F

DIODES		
D401	1SS133	Diode, Silicon
D601	1SS133	Diode, Silicon
D901	1SS133	Diode, Silicon
D902	UZ6.2B	Diode, Zener 6.2V
D903	UZ5.6B	Diode, Zener 5.6V
D904	UZ5.6V	Diode, Zener 5.6V
D905	SR1K2	Diode

ICS		
IC301	14DW240	IC, D/A Converter
IC401	14DW238	IC, Servo Processor
IC402	14DW237	IC, Signal Analyzer
IC403	TC5517CFL-15	IC, RAM
IC404	14DW251	IC, Micro Computer
IC405	14DD249	IC, Reset
IC501	14LW195	IC, RF Amp
IC601	TA75902F	IC, Operational Amp
IC701	14LW197	IC, Driver
IC702	14LW197	IC, Driver



Ref. No.	Part No.	Description
R511	134F183C	Res. Chip 18K ohm 1/10W
R512	134F183C	Res. Chip 18K ohm 1/10W
R513	134F472C	Res. Chip 4.7K ohm 1/10W
R515	134F684C	Res. Chip 680K ohm 1/10W
R516	134F683C	Res. Chip 68K ohm 1/10W
R517	134F682C	Res. Chip 6.8K ohm 1/10W
R518	134F564C	Res. Chip 560K ohm 1/10W
R519	134F822C	Res. Chip 8.2K ohm 1/10W
R520	134F682C	Res. Chip 6.8K ohm 1/10W
R521	134F104C	Res. Chip 100K ohm 1/10W
R522	134F473C	Res. Chip 47K ohm 1/10W
R523	134F154C	Res. Chip 150K ohm 1/10W
R524	134F102C	Res. Chip 1K ohm 1/10W
R525	134F183C	Res. Chip 18K ohm 1/10W
R601	134F683C	Res. Chip 68K ohm 1/10W
R602	134F332C	Res. Chip 3.3K ohm 1/10W
R603	134F473C	Res. Chip 47K ohm 1/10W
R604	134F224C	Res. Chip 220K ohm 1/10W
R606	134F274C	Res. Chip 270K ohm 1/10W
R607	134F222C	Res. Chip 2.2K ohm 1/10W
R608	134F103C	Res. Chip 10K ohm 1/10W
R609	134F473C	Res. Chip 47K ohm 1/10W
R610	134F124C	Res. Chip 120K ohm 1/10W
R611	134F124C	Res. Chip 120K ohm 1/10W
R612	134F333C	Res. Chip 33K ohm 1/10W
R613	134F823C	Res. Chip 82K ohm 1/10W
R614	134F153C	Res. Chip 15K ohm 1/10W
R615	134F223C	Res. Chip 22K ohm 1/10W
R616	134F222C	Res. Chip 2.2K ohm 1/10W
R617	134F221C	Res. Chip 220 ohm 1/10W
R618	134F392C	Res. Chip 3.9K ohm 1/10W
R619	134F682C	Res. Chip 6.8K ohm 1/10W
R620	134F102C	Res. Chip 1K ohm 1/10W
R621	134F333C	Res. Chip 33K ohm 1/10W
R622	134F105C	Res. Chip 1M ohm 1/10W
R623	134F104C	Res. Chip 100K ohm 1/10W
R624	134F682C	Res. Chip 6.8K ohm 1/10W
R625	134F222C	Res. Chip 2.2K ohm 1/10W
R626	134F102C	Res. Chip 1K ohm 1/10W
R627	134F123C	Res. Chip 12K ohm 1/10W
R628	1324183	Res. Carbon 18K ohm 1/5W
R901	134F823C	Res. Chip 82K ohm 1/10W
R902	134F823C	Res. Chip 82K ohm 1/10W
R903	134F563C	Res. Chip 56K ohm 1/10W
R904	134F103C	Res. Chip 10K ohm 1/10W
R905	134F154C	Res. Chip 150K ohm 1/10W
R906	134F824C	Res. Chip 820K ohm 1/10W
R907	1324479	Res. Carbon 4.7 ohm 1/5W
R908	134F471C	Res. Chip 480 ohm 1/10W
R909	134F151C	Res. Chip 150 ohm 1/10W
R911	134F471C	Res. Chip 470 ohm 1/10W
R912	134F151C	Res. Chip 150 ohm 1/10W
R913	134F102C	Res. Chip 1K ohm 1/10W
R914	134F102C	Res. Chip 1K ohm 1/10W
R915	134F103C	Res. Chip 10K ohm 1/10W
R916	134F102C	Res. Chip 1K ohm 1/10W
R917	134F102C	Res. Chip 1K ohm 1/10W

Ref. No.	Part No.	Description
IC703	14LW197	IC, Driver
IC704	14LW197	IC, Driver
IC901	NJM2903M	IC, Operational Amp
<b>JACKS</b>		
J1	1630353	Jack, Headphone
J2	1630353	Jack, Line Out
J3	1630354	Jack, DC Power
<b>POTENTIOMETER</b>		
VR101/201	539N680	Potentiometer, 50K ohm C Main Volume
SF501	238N001	Potentiometer, 100K ohm B Focus Off Set
SF502	138N999	Potentiometer, 50K ohm B Focus Balance
SF503	138N999	Potentiometer, 50K ohm B RF Level
SF504	238N002	Potentiometer, 200K ohm B Tracking Balance
<b>RESISTORS</b>		
R301	134F392C	Res. Chip 3.9K ohm 1/10W
R302	134F103C	Res. Chip 10K ohm 1/10W
R303	134F683C	Res. Chip 68K ohm 1/10W
R401	134F220C	Res. Chip 22 ohm 1/10W
R404	134F182C	Res. Chip 1.8K ohm 1/10W
R405	134F332C	Res. Chip 3.3K ohm 1/10W
R406	134F562C	Res. Chip 5.6K ohm 1/10W
R407	134F123C	Res. Chip 12K ohm 1/10W
R408	134F151C	Res. Chip 150 ohm 1/10W
R409	134F102C	Res. Chip 1K ohm 1/10W
R411	134F103C	Res. Chip 10K ohm 1/10W
R412	134F103C	Res. Chip 10K ohm 1/10W
R413	134F103C	Res. Chip 10K ohm 1/10W
R414	134F103C	Res. Chip 10K ohm 1/10W
R415	134F103C	Res. Chip 10K ohm 1/10W
R416	134F103C	Res. Chip 10K ohm 1/10W
R417	134F103C	Res. Chip 10K ohm 1/10W
R418	134F103C	Res. Chip 10K ohm 1/10W
R419	134F103C	Res. Chip 10K ohm 1/10W
R420	134F103C	Res. Chip 10K ohm 1/10W
R421	134F103C	Res. Chip 10K ohm 1/10W
R422	134F103C	Res. Chip 10K ohm 1/10W
R423	134F103C	Res. Chip 10K ohm 1/10W
R424	134F103C	Res. Chip 10K ohm 1/10W
R425	134F103C	Res. Chip 10K ohm 1/10W
R426	134F103C	Res. Chip 10K ohm 1/10W
R501	134F103C	Res. Chip 10K ohm 1/10W
R502	134F103C	Res. Chip 10K ohm 1/10W
R503	134F272C	Res. Chip 2.7K ohm 1/10W
R504	134F822C	Res. Chip 8.2K ohm 1/10W
R505	134F103C	Res. Chip 10K ohm 1/10W
R506	134F333C	Res. Chip 33K ohm 1/10W
R507	134F154C	Res. Chip 150K ohm 1/10W
R508	134F822C	Res. Chip 8.2K ohm 1/10W
R509	134F151C	Res. Chip 150 ohm 1/10W
R510	134F822C	Res. Chip 8.2K ohm 1/10W

Ref. No.	Part No.	Description
R918	134F393C	Res. Chip 39K ohm 1/10W
R919	134F223C	Res. Chip 22K ohm 1/10W
R920	134F394C	Res. Chip 390K ohm 1/10W
R921	134F103C	Res. Chip 10K ohm 1/10W
R922	1324479	Res. Carbon 4.7 ohm 1/5W
R923	134F471C	Res. Chip 470 ohm 1/10W
R924	134F151C	Res. Chip 150 ohm 1/10W
R925	134F102C	Res. Chip 1K ohm 1/10W
R926	134F223C	Res. Chip 22K ohm 1/10W
R927	134F223C	Res. Chip 22K ohm 1/10W
R928	134F333C	Res. Chip 33K ohm 1/10W
R929	134F333C	Res. Chip 33K ohm 1/10W
<b>SWITCHES</b>		
SW401	5622053	Switch, Tact
SW402	5622053	Switch, Tact
SW403	5622053	Switch, Tact
SW404	5622053	Switch, Tact
SW405	5622053	Switch, Tact
SW901	1621656	Switch, Slide, Power
<b>TRANSISTORS</b>		
Q501	2SC2021R	Transistor
Q601	2SA937R	Transistor
Q901	2SA937R	Transistor
Q902	2SA937R	Transistor
Q903	2SC2021R	Transistor
Q904	2SC2021R	Transistor
Q905	2SC2021R	Transistor
Q906	2SC2673R	Transistor
Q907	2SB911MR	Transistor
Q908	2SA937R	Transistor
Q909	2SB911MR	Transistor
Q910	2SC2673R	Transistor
Q911	2SD1469R	Transistor
Q912	2SD1469R	Transistor
Q913	2SD1469R	Transistor
Q914	2SD1469R	Transistor
<b>MISCELLANEOUS</b>		
LCD401	1833027	LCD Display
X401	1811200	Cera Lock
	1730929	Pin Header 6P
	1730930	Pin Header 7P
	1730995	FPC Connector 4P
	1730996	FPC Connector 8P
	1730998	Connector Base 10P
	1730999	Connector Base Ass'y 10P
	1770001	Connector Base Ass'y 5P
	1770002	Connector Base Ass'y 7P

Ref. No.	Part No.	Description
1613831-BX		<b>Audio P.C.B. Ass'y</b>
<b>CAPACITORS</b>		
C101	526S106	Cap. Electrolytic 10 $\mu$ F/10V
C102	526U335	Cap. Electrolytic 3.3 $\mu$ F/25V
C103	12B3561C	Cap. Chip Ceramic 560pF
C104	12B3182C	Cap. Chip Ceramic 1800pF
C105	526S106	Cap. Electrolytic 10 $\mu$ F/10V
C106	526S106	Cap. Electrolytic 10 $\mu$ F/10V
C107	526R227	Cap. Electrolytic 220 $\mu$ F/6.3V
C108	526R227	Cap. Electrolytic 220 $\mu$ F/6.3V
C109	526R107	Cap. Electrolytic 100 $\mu$ F/6.3V
C110	526R227	Cap. Electrolytic 220 $\mu$ F/6.3V
C111	526S106	Cap. Electrolytic 10 $\mu$ F/10V
C201	526S106	Cap. Electrolytic 10 $\mu$ F/10V
C202	526U335	Cap. Electrolytic 3.3 $\mu$ F/25V
C203	12B3561C	Cap. Chip Ceramic 560pF
C204	12B3182C	Cap. Chip Ceramic 1800pF
C205	526S106	Cap. Electrolytic 10 $\mu$ F/10V
C206	526S106	Cap. Electrolytic 10 $\mu$ F/10V
C207	526R227	Cap. Electrolytic 220 $\mu$ F/6.3V
<b>IC</b>		
IC101	14LW210	IC, AF Amp
<b>COILS</b>		
L101	1812021	Coil, Filter
L201	1812021	Coil, Filter
<b>RESISTORS</b>		
R101	134F272C	Res. Chip 2.7K ohm 1/10W
R102	134F562C	Res. Chip 5.6K ohm 1/10W
R103	134F103C	Res. Chip 10K ohm 1/10W
R104	134F562C	Res. Chip 5.6K ohm 1/10W
R105	134F223C	Res. Chip 22K ohm 1/10W
R106	134F822C	Res. Chip 8.2K ohm 1/10W
R107	134F561C	Res. Chip 560 ohm 1/10W
R108	134F220C	Res. Chip 22 ohm 1/10W
R109	134F103C	Res. Chip 10K ohm 1/10W
R201	134F272C	Res. Chip 2.7K ohm 1/10W
R202	134F562C	Res. Chip 5.6K ohm 1/10W
R203	134F103C	Res. Chip 10K ohm 1/10W
R204	134F562C	Res. Chip 5.6K ohm 1/10W
R205	134F223C	Res. Chip 22K ohm 1/10W
R206	134F822C	Res. Chip 8.2K ohm 1/10W
R207	134F561C	Res. Chip 560 ohm 1/10W
R208	134F220C	Res. Chip 22 ohm 1/10W
R209	134F103C	Res. Chip 10K ohm 1/10W
R410	134F473C	Res. Chip 47K ohm 1/10W

Ref. No.	Part No.	Description
	1613831-CX	<b>Automatic Laser Power Control P.C.B. Ass'y</b>
<b>CAPACITORS</b>		
C801 C802 C803	121R476 121R107 12B3223C	Cap. Electrolytic 47 $\mu$ F/6.3V Cap. Electrolytic 100 $\mu$ F/6.3V Cap. Chip Ceramic 0.022 $\mu$ F
<b>DIODES</b>		
D801 D802	UZZ2.2B 1SS133	Diode, Zener 2.2V Diode, Silicon
<b>IC</b>		
IC801	NJM2904M	IC, Operational Amp
<b>POTENTIOMETER</b>		
SF801	238N025	Potentiometer, 1K ohm B APC
<b>RESISTORS</b>		
R801 R802 R803 R804 R805 R806 R807 R808 R809 R810	134F103C 134F331C 134F183C 134F222C 134F104C 134F683C 134F102C 1324100 134F103C 134F101C	Res. Chip 10K ohm 1/10W Res. Chip 330 ohm 1/10W Res. Chip 18K ohm 1/10W Res. Chip 2.2K ohm 1/10W Res. Chip 100K ohm 1/10W Res. Chip 680K ohm 1/10W Res. Chip 1K ohm 1/10W Res. Carbon 10 ohm 1/5W Res. Chip 10K ohm 1/10W Res. Chip 100 ohm 1/10W
<b>TRANSISTOR</b>		
Q801	2SB911MR	Transistor
<b>MISCELLANEOUS</b>		
	1613831-DX	<b>Junction P.C.B. Ass'y</b>
	1613831-D 1613831-E 1730283 1770040 E1001-01 E1001-02	Consists of following Junction P.C.B.-1 Junction P.C.B.-2 Connector Base Ass'y 4P FPC Connector 4P Housing Ass'y 6P Housing Ass'y 7P

Ref. No.	Part No.	Description
<b>Others</b>		
PU801	1812010	Pick-up
SW406 SW407	5622050 5622050	Switch, Micro, Pick-up Limit Switch, Micro, Open/Close
M701 M702	Motor, Feed Motor, Disc	See CD DECK MECHANICAL PARTS LIST, BO-2 See CD DECK MECHANICAL PARTS LIST, BO-1

# MECHANICAL PARTS LIST

Ref. No.	Part No.	Description
<b>CABINET</b>		
A-1	21C7522	Top Cover
A-2	21D7464	Plate, Control
A-3	21C7519	Holder, Button
A-4	21N9392	Button, Control
A-5	21N9394	Button R, Control
A-6	21N9395	Knob, Rotary
A-7	21N9396	Button, Open
A-8	21N9429	Button, Lock
A-9	23C7555X	Door Ass'y, Disk Consists of following
	23C7555	A-9 Cover, Door
	21D7463	A-10 Window, Disk
	23X9277	B-2 Holder, Chuck
	21W8057	B-3 Holder, Disk (Upper)
	25W8904	B-18 Shaft, Switch
	24W9495	B-19 Sheet S, Insulation
	24W9497	B-34 Adhesive Tape L
	24W9566	B-35 Adhesive Tape W
	24W9498	B-36 Adhesive Tape R
A-11	21C7520	Cover, Bottom
A-12	24W9490	Foot, Case
A-13	25W8899	Shaft, Strap
A-14	24L8391	Label, ID
A-15	24L7785	Label, Serial No.
A-16	24L8383	Label, IEC Instruction
A-17	24L8382	Label, Caution
B-1	23M8296	Cover, Pick-up
B-4	23X9278	Holder, Disk
B-5	24W9491	Cushion, Chucking
B-6	22W7007	Magnet
B-7	24W9492	Cover, Magnet
B-8	21W8058	Damper
B-9	23S7691	Chassis, Main
B-12	23X9281	Stay
B-13	23X9314	Lock Plate, Stay
B-15	25W8902	Collar, Stay
B-16	26W8009	Spring, Stay
B-17	26W8007	Spring
B-20	21W8059	Holder, Switch
B-21	23X9284	Plate, Terminal A
B-22	23X9285	Plate, Terminal B
B-23	21W8060	Lock Arm
B-24	25W8905	Shaft, Lock Arm
B-25	26W8008	Spring, Lock Arm
B-26	23X9283	Hinge L
B-27	23X9282	Hinge R
B-28	26W8010	Shaft, Hinge
B-29	23X9287	Mounting Plate, LCD
B-30	24W9499	Adhesive Tape D
B-31	24W9534	Cover, Switch
B-32	26W8011	Coil Spring, Button
B-33	23X9286	Spring, Button
B-37	24W9494	Sheet A, Insulation
B-38	24W9493	Sheet B, Insulation
B-39	23X9340	Holder, Shaft
B-40	21W8090	Damper B
B-41	24W9579	Washer A
B-43	21W8103	Spacer, Stay
B-44	24W9581	Sheet, Spacer

Ref. No.	Part No.	Description
B-45	23X9347	Plate, Shield
B-46	24W9582	Sheet C, Insulation
B-47	23X9280	Mounting Plate B, Damper
B-48	23X9290	N Metal
B-49	25W8900	Shaft Damper
L-1	SPC3703	Screw, Pan Head M1.7×3
L-2	SPK3704	Screw, Pan Head M1.7×3.5
L-3	SPK3705	Screw, Pan Head M1.7×5
L-4	SPK3E05	Screw, Pan Head M1.4×5
L-5	GBKB703	Screw, B-Tight, Pan Head M1.7×2.5
L-6	GBKB207	Screw, B-Tight, Pan Head M2×7
L-7	GBKB705	Screw, B-Tight, Pan Head M1.7×5
L-8	EES0015	E-ring 1.5mm dia.
L-11	WPN7043	Washer, Flat 1.8 dia. ×4 dia. ×0.3t
L-12	SOK3905	Screw, Flat Head M2.6×5
L-13	HEO5010	Lug, Ground
L-14	SPK3205	Screw, Flat Head M2×4.5
<b>DECK</b>		
BO-1	27W7243X	Disc Motor Turntable Ass'y Consists of following
	21S0020	Chassis, Pick-up
	27W7243	Turntable Ass'y
	1640261	Motor, Disc
	SPK3703	Screw, Pan Head M1.7×3
BO-2	27W7245X	Feed Motor Gear Ass'y Consists of following
	23X9275	Bracket, Motor
	24W7489	Washer
	26W8006	Spring B
	21W8049	Gear A, Feed
	21W8050	Gear B, Feed
	21W8051	Gear C, Feed
	21W8052	Gear D, Feed
	21W8053	Gear E, Feed
	21W8056	Holder, Shaft
	21W8055	Gear, Warm
	1640260	Motor, Feed
	SPK3204	Screw, Pan Head M2×3.5
BO-3	25W8895	Shaft R, Guide
BO-4	23X9271	Bracket A, Shaft
BO-5	23X9272	Bracket B, Shaft
BO-6	23X9273	Bracket C, Shaft
BO-7	23X9274	Bracket D, Shaft
BO-8	21W8054	Feed, Rack
BO-9	25W8909	Collar B
BO-10	26W8016	Spring, Tension
BO-11	25W8894	Shaft L, Guide
LO-2	GDMB707	Screw, B-Tight, Flat Head M1.7×7
LO-4	SPK3206	Screw, Pan Head M2×6
LO-5	GBKB705	Screw, B-Tight, Pan Head M1.7×5
LO-6	GAMB704	Screw, M1.7×4
LO-7	SPK3205	Screw, Pan Head M2×4.5

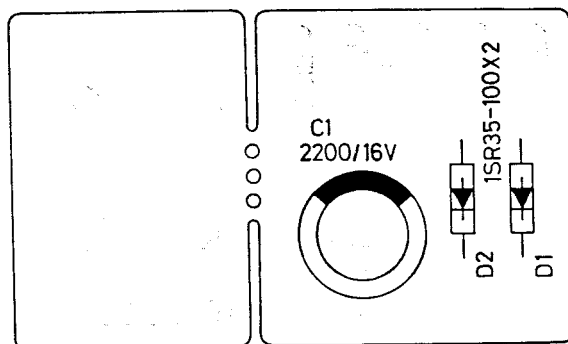


## **ACCESSORY PARTS For CD Player TPD-10**

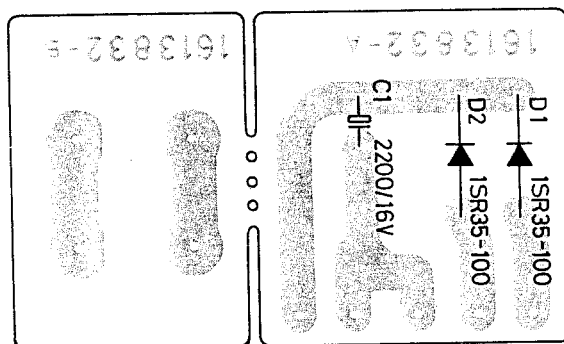
**AC Adaptor AD-150  
Battery Compartment Ass'y BC-400**

# **SERVICE GUIDE**

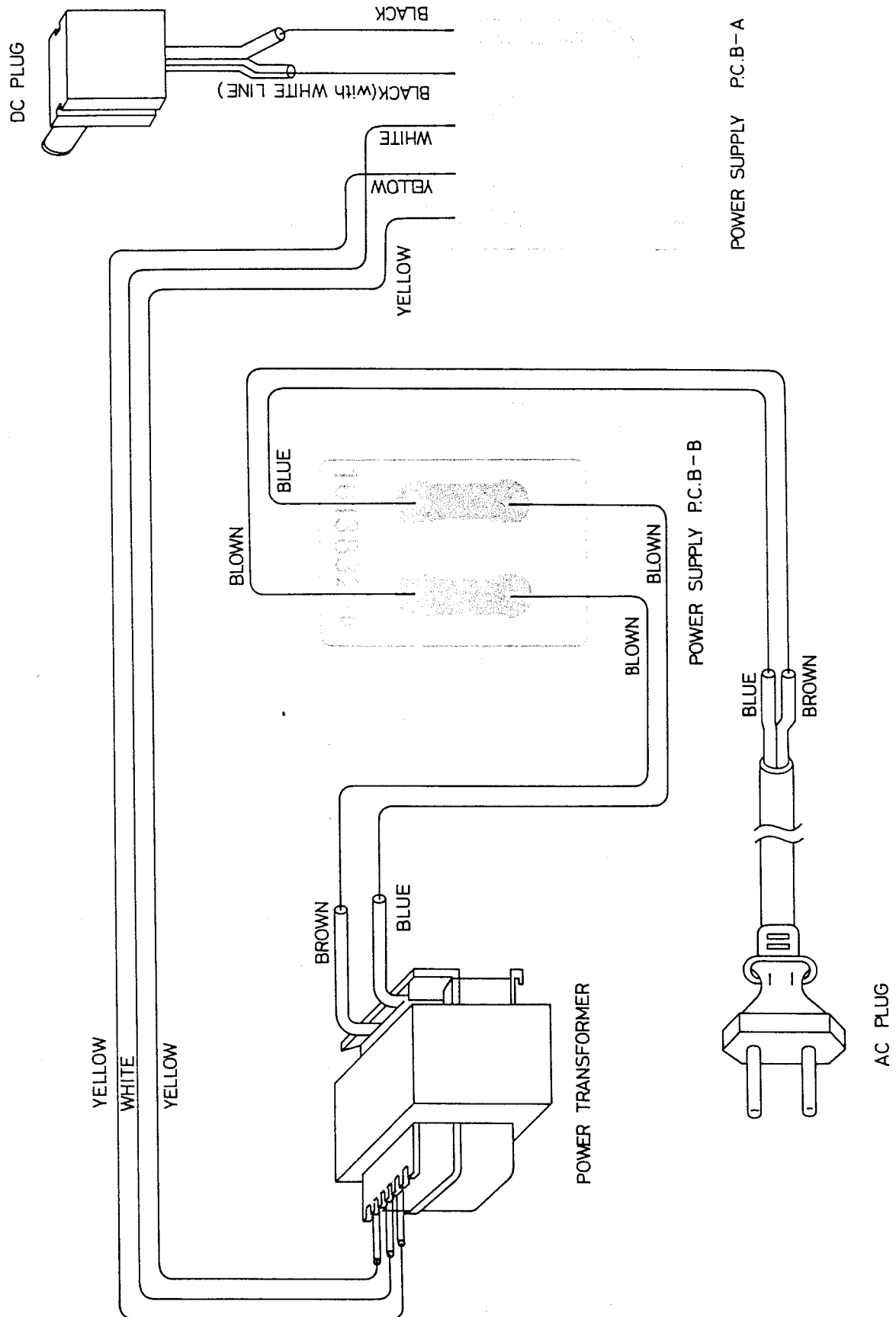
## P.C.B. TOP VIEW



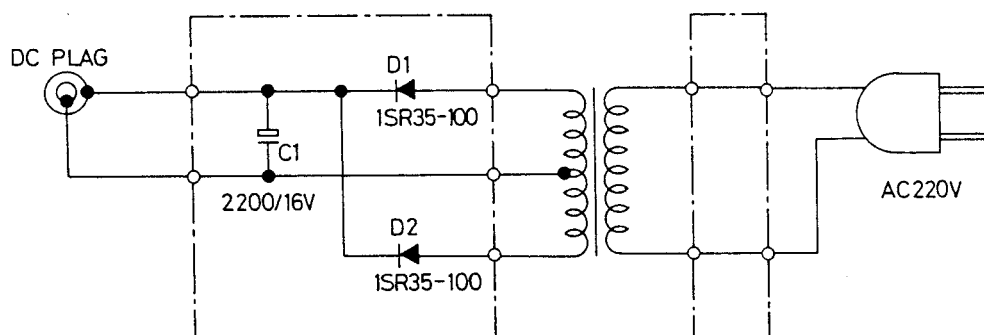
## P.C.B. BOTTOM VIEW



# WIRING DIAGRAM (AC ADAPTER AD-150)



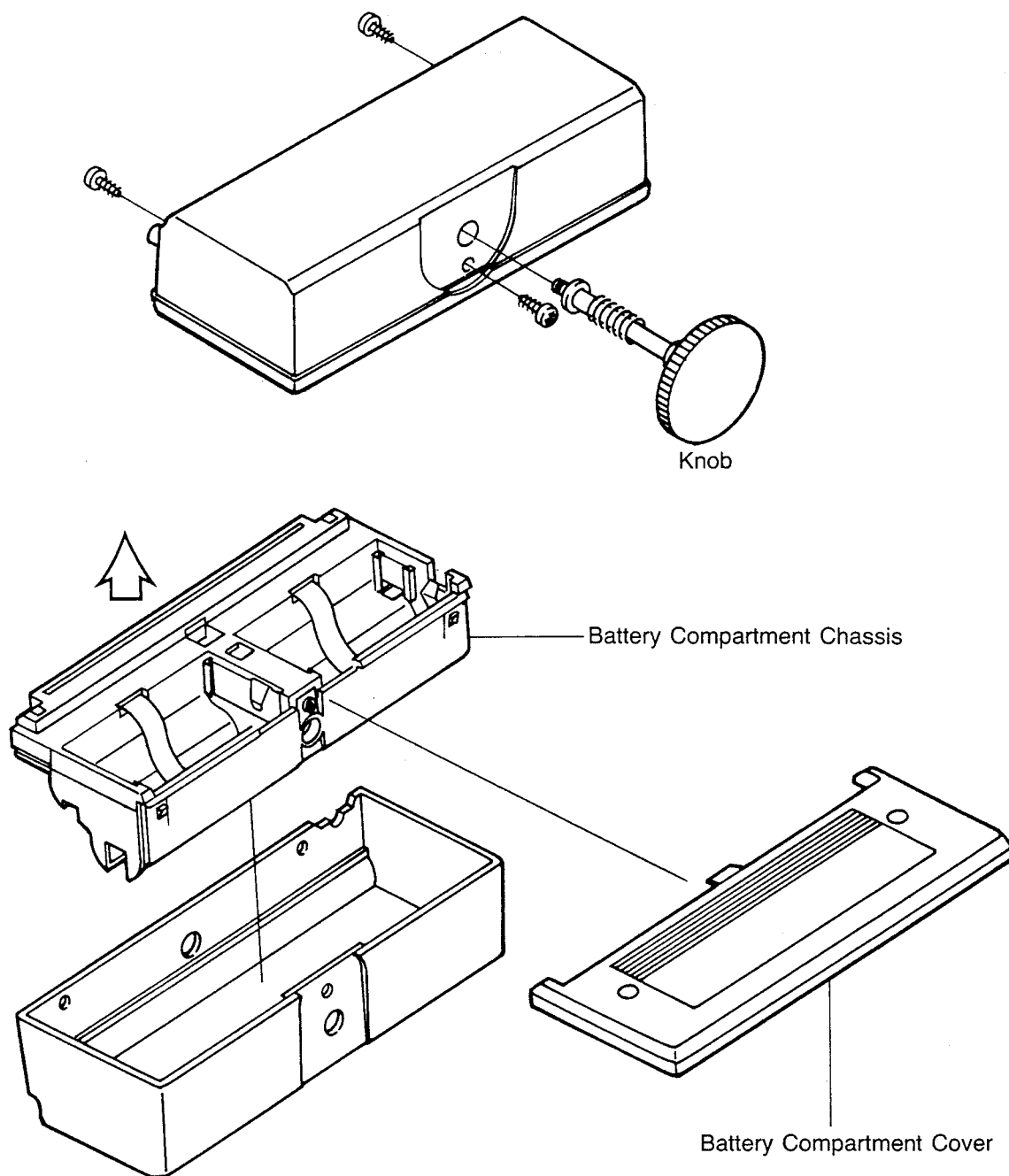
## SCHEMATIC DIAGRAM (AC ADAPTER AD-150)





## DISASSEMBLY INSTRUCTIONS FOR BATTERY COMPARTMENT ASS'Y BC-400

- (1) Pull KNOB from BATTERY COMPARTMENT through its guide hole completely.
- (2) Remove screws (3 pcs) from BATTERY COMPARTMENT as shown.
- (3) Pull out the upper portion of BATTERY COMPARTMENT carefully. (in the direction of arrow)
- (4) Remove BATTERY COMPARTMENT COVER from BATTERY COMPARTMENT CHASSIS.

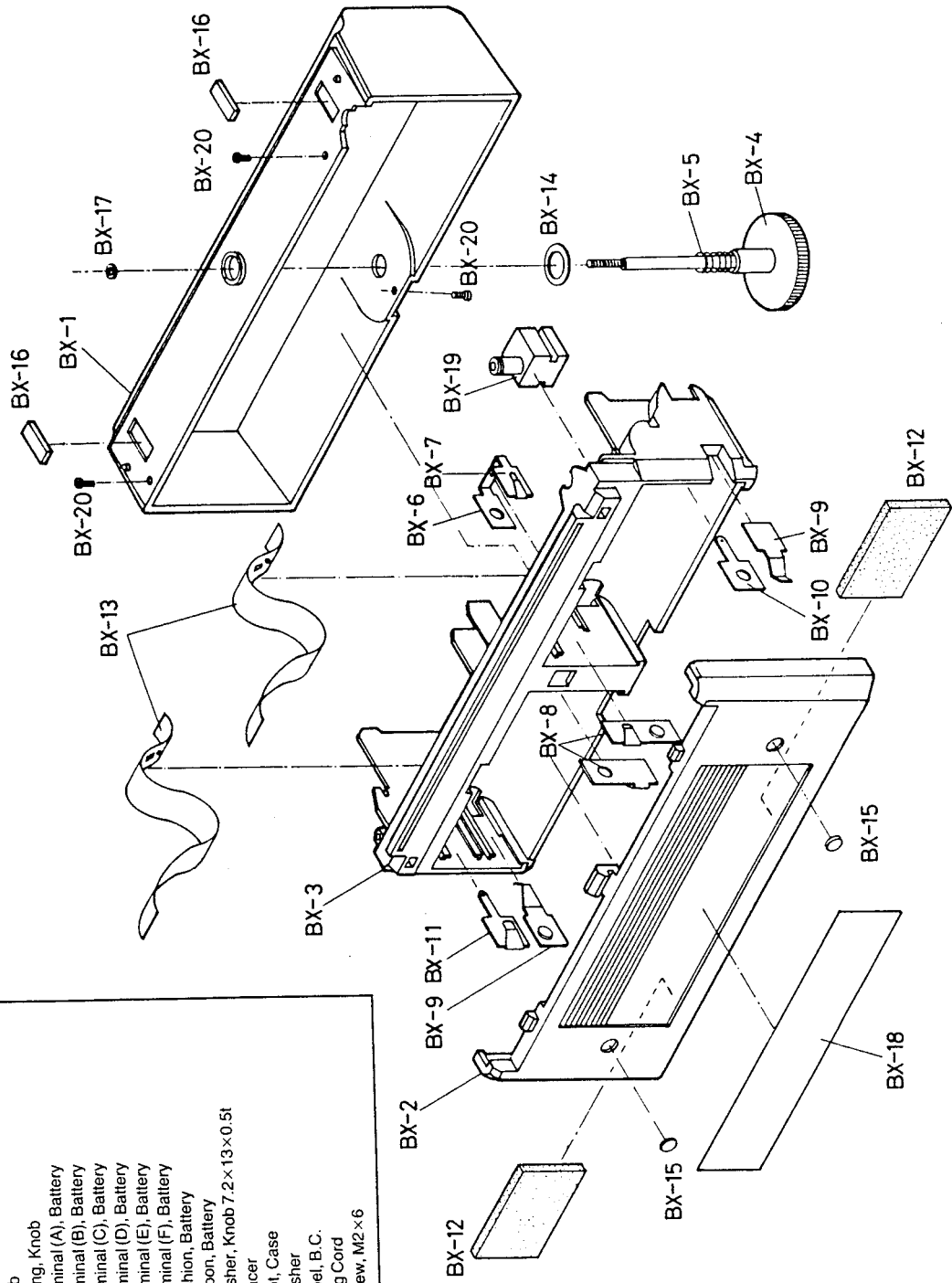


# EXPLODED VIEW (BATTERY COMPARTMENT BC-400)

## Battery Compartment Ass'y BC-400 W1101E9

Consists of following

Ref. No.	Part No.	Description
BX-1	21B7040	Compartment, Battery
BX-2	21B7034	Cover, Battery Compartment
BX-3	21B7032	Chassis, Battery Compartment
BX-4	21B7035	Knob
BX-5	26W8020	Spring, Knob
BX-6	23B7018	Terminal (A), Battery
BX-7	23B7019	Terminal (B), Battery
BX-8	23B7020	Terminal (C), Battery
BX-9	23B7021	Terminal (D), Battery
BX-10	23B7022	Terminal (E), Battery
BX-11	23B7023	Terminal (F), Battery
BX-12	24W9533	Cushion, Battery
BX-13	24B7022	Ribbon, Battery
BX-14	24T7507	Washer, Knob 7.2×13×0.5t
BX-15	24T7505	Spacer
BX-16	24W9490	Foot, Case
BX-17	24T7506	Washer
BX-18	24L8392	Label, B.C.
BX-19	1630355	Plug Cord
BX-20	GBKB206	Screw, M2×6



## EXPLODED VIEW (AC ADAPTER AD-150)

### AC Adapter Ass'y AD-150 W1001E9 Consists of following

Ref. No.	Part No.	Description
AX-1	1750585	AC Cord
AX-2	1790238	Stopper, Cord
AX-3	1150493	Power Transformer
AX-4	1630360	Plug Cord
AX-5	1613832	P.C. Board
AX-6	126C228	Cap. Electrolytic 2200 $\mu$ F/16V
AX-7	1SR35-100	Diode, Rectifier
AX-8	21B7051	Case (U), AC Adaptor
AX-9	21B7038	Case (D), AC Daplor
AX-10	21B7039	Lock Knob
AX-11	26W8020	Spring, Knob
AX-12	24T7507	Washer, Knob 7.2 $\times$ 13 $\times$ 0.5t
AX-13	25T7506	Washer
AX-14	25T7505	Spacer
AX-15	24W9490	Foot, Case
AX-16	24L8393	AA Label

